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MARCH HÆMOGLOBINURIA: DESCRIPTION OF THE FEATURES OF THIS CONDITION, AND REPORT OF A CASE.

By LUCY M. BRYCE,
Major, Australian Army Medical Corps

(From an Australian Military Hospital.)

MARCH HÆMOGLOBINURIA, or hæmoglobinuria following exertion, is a condition in which physical exertion (most frequently, in the cases so far reported, in the form of marching) is followed by the passage of red or dark-coloured urine, which on examination is found to contain hæmoglobin in solution.

A review of the literature by Gilligan and Blumgart in 1941[1] indicates that, although the condition was first described by Fleischer in 1881, since that time only 40 cases have been reported, mostly by German authors. Gilligan and Blumgart note that Fiegl reported in 1916 the occurrence after exhausting marches of microscopic and chemical evidence of blood or blood pigments in the urine of many young soldiers. They also refer to the statement of Dickinson that it was recognized in England as early as 1894 that the urine of athletes was sometimes red after strenuous runs, especially during the early stages of training. Nevertheless, the small number of cases of frank or gross hæmoglobinuria after exertion actually reported in detail appears to warrant the recording of the case to be described below, which illustrates well the typical features of the condition and the pitfalls which may arise in making a diagnosis.

The salient features of march hæmoglobinuria are the following.

1. It occurs in young males, usually in the second or third decade. In the recorded cases, the initial attacks occurred between the sixteenth and thirty-fifth years. So far no authentic cases in females have been described.

2. It is related to exercise in the upright position. The amount of such exercise necessary to produce an attack varies in different cases from walking of about fifteen minutes' duration to strenuous athletic running or long marches. It is relatively constant in any one case, particularly in the early stages; but as the condition progresses towards recovery, increasing amounts of exercise may be tolerated. The relationship to the upright position has been convincingly demonstrated in most of the recorded cases. Gilligan and Blumgart showed that greater amounts of work (as measured on an ergometer) than that incurred in the walking which produced an attack, failed to do so when the work was performed in the supine position, or when a kyphotic posture was enforced by means of a plaster jacket.

Lordosis has been recorded in some of the cases reviewed by Gilligan and Blumgart, and Witts[2] states that it would appear that lumbar lordosis is an important ætiological factor. It was not, however, demonstrable in any of the three cases encountered by Gilligan and Blumgart, and was not revealed by physical or X-ray examination of the present patient. In this case, however, the upright posture appeared to be a factor, since digging in the garden for a longer period than the walking necessary to produce an attack did not cause hæmoglobinuria.

Gilligan and Blumgart review a suggestion made by Schellong, in 1923, that even if actual structural lordosis is not present, during walking a lordotic position may be assumed, which may cause compression of and stasis in the renal veins, with resultant hæmolysis of the blood in these vessels. If this is so, it is possible that the narrower pelvis of males and the associated differences in anatomical relationship of soft structures may be related to the sex incidence of march hæmoglobinuria. Gilligan and Blumgart, however, consider that there is no definite evidence to indicate that renal stasis occurs. If their view is correct, and if anatomical relationships play no part in its causation, it is possible that the present-day participation by young women in military exercises and strenuous athletics may give rise to cases of march hæmoglobinuria in females.

Although lordosis cannot always be demonstrated, the clear association with exercise in the upright position does suggest that at least some deficiency of postural tone with perhaps accompanying vasomotor instability, such as is not uncommon in adolescents and young adults, are factors in the production of march hæmoglobinuria. It is interesting to note that our patient also showed orthostatic albuminuria, which chiefly occurs in male subjects of the same age group and physical type as those apparently most liable to march hæmoglobinuria. It was not, however, found by Gilligan and Blumgart in their cases. The data regarding this point are insufficient for critical analysis in the majority of other recorded cases.

3. Constitutional symptoms are absent or mild. March hæmoglobinuria, as indicated above, occurs chiefly in young soldiers or athletes who are otherwise in good health. Sometimes,

but not invariably, some lower abdominal or lumbar pain or discomfort is experienced during or after an attack; but physical examination rarely reveals any abnormalities, though Gilligan and Blumgart report that in one of their cases the liver and spleen were palpable and in two the sclera were slightly icteric.

Blood loss or destruction sufficient to cause anæmia has not been recorded. There is no evidence of undue fragility of the red cells, or of continued or repeated intravascular hæmolysis sufficient to give rise to a constant reticulocytosis or persistent bilirubinæmia above normal limits, although Witts and Gilligan and Blumgart report transient increases in plasma hæmoglobin and bilirubin levels.

No underlying disease, such as syphilis, with which the type of paroxysmal hæmoglobinuria known as "cold hæmolysis" is almost always associated, can be demonstrated.

4. The course is benign. The condition appears to have no permanent ill-effects, and progresses without specific treatment towards ultimate spontaneous recovery, which usually takes place within a period of months or a year or two after the initial attack. Occasionally it is of longer duration. Witts reported one case in which periodic attacks occurred for seven years, and Gilligan and Blumgart quote a case in which attacks occurred intermittently for twenty years.

In spite of its ultimate good prognosis, of which the patient may be assured, gross hæmoglobinuria is an alarming symptom to its victim. For this reason and on general medical grounds, it would seem wise in cases associated with severe or frequent attacks to restrict any athletics which provoke attacks, or to attempt by graded exercises to improve postural tone and increase the "tolerance" to the activity in question.

Gilligan and Blumgart also suggest that in cases in which the causative factor is walking, which obviously cannot be wholly restricted without undue and unnecessary interference with normal life, a brace which induces some measure of kyphosis may be useful, and that consideration should be given to the advisability of administration of sufficient fluid and alkali to alkalinize the urine at times when attacks may be anticipated.

Discussion.

It is clear that the exact ætiology and mechanism of march hæmoglobinuria are not yet fully understood. Witts considers that, in view of the low level of hæmoglobinæmia and the trivial nature of the general symptoms as compared with the amount of hæmoglobin in the urine, the condition is probably due to a localized hæmolysis confined to the renal vessels. This, he suggests, results in the prompt excretion of the greater part of the liberated hæmoglobin as soon as it is produced, and the escape of only a small amount into the general circulation.

Gilligan and Blumgart, on the other hand, consider that their data indicate that the hæmoglobinuria is always preceded by, and is a result of, the hæmoglobinæmia, and that the hæmoglobin appearing in the urine represents only about 10% of that liberated into the plasma during the period of hæmolysis. They showed that in subjects affected by march hæmoglobinuria, hæmoglobin might appear in the urine at lower levels of plasma hæmoglobin than in normal subjects.

The association of march hæmoglobinuria with posture and exercise makes it tempting to consider the possibility, as an ætiological factor, of an abnormality of muscle metabolism, resulting perhaps in excessive release and excretion of myohæmoglobin. However, neither Witts, Gilligan and Blumgart, nor Mr. F. H. Holden, of the Walter and Eliza Hall Institute, to whom I am greatly indebted for examination of specimens of blood and urine from the present patient, could demonstrate the presence of myohæmoglobin in the blood or urine. In all instances, spectroscopic examination has shown the liberated pigment to be oxyhæmoglobin, either alone or in acid urine, with derivative methæmoglobin.

Witts and Gilligan and Blumgart report the occurrence of only very occasional red cells in the urine of their patients, and do not appear to regard them as of significance. In the present case, although red cells were not invariably present, they were on occasion rather more numerous (up to seven to ten per high-power field in the centrifuged deposit from five cubic centimetres of urine) than in other reported cases. I considered the possibility that the hæmoglobinuria was due to hæmolysis of red cells in the urine owing to its acidity. Alkalinization by the administration of potassium citrate did not, however, appreciably alter the number of red cells present or the production of the hæmoglobinuria by exercise.

A point of practical importance is that the essential nature of the condition—that is, its relation to exercise in the upright position and the absence of any associated physical abnormalities or after-effects—may tend to cause delay in diagnosis, as it did in the present case, and in one of Gilligan and Blumgart's, which had been ineffectually investigated for over a year before the patient came into their hands. Moreover, the hæmoglobinuria usually (though not invariably) occurs during or immediately after the provoking exercise, and is of short duration, so that it has usually passed off before the patient presents himself for examination. It may, therefore, often be impossible to ascertain at the first examination the nature of the discoloration of the urine of which the patient complains.

Furthermore, in the usual routine of a hospital or clinic, physical examination and special investigations are almost certain to be carried out with the patient either in bed or more or less at rest, so that it is unlikely that the condition will reappear while such investigations are being made.

It is, nevertheless, proper, since march hæmoglobinuria is a rare condition, that such investigations (for example, physical examination, pyelography, cystoscopy, hæmatological and renal function tests *et cetera*) should be made to eliminate the more common causes of hæmaturia or hæmoglobinuria, such as local lesions in the urinary tract or general diseases likely to cause hæmorrhagic or hæmolytic episodes. If, however, such investigations are all unfruitful, or if the history is suggestive, the possibility of march hæmoglobinuria or other paroxysmal types of hæmoglobinuria should be kept in mind and appropriate tests made.

When it has been ascertained that the condition is not hæmaturia, but is hæmoglobinuria of paroxysmal occurrence, other causes of this condition to be excluded are the following.

1. Blackwater fever.

2. Hæmoglobinuria due to ingestion of certain drugs, or in some countries (but not Australia) certain foodstuffs, such as the fava bean (*Vicia fava*).

3. Cold hæmoglobinuria; this has almost always a syphilitic basis, either congenital or acquired. The Wassermann test will therefore usually produce a positive reaction. The Donath-Landsteiner test, which demonstrates the presence of hæmolysins active at low temperatures in the patient's serum, will produce a positive reaction. Immersion of the patient's hand or foot in ice-cold water for ten to fifteen minutes (Rosenbach's test) will precipitate an attack of hæmoglobinuria.

4. Nocturnal hæmoglobinuria (Marchiafava-Micheli syndrome). In this condition the hæmoglobinuria usually, though not invariably, occurs at night, and is not produced by cold or exercise. It is associated with a persistent and progressive hæmolytic anæmia, which is resistant to all known forms of treatment and ultimately leads to a fatal outcome. Susceptibility of the red cells to a potential lysin present in normal serum but most active at pH 7·0 to 7·2, a degree of acidity which occurs during sleep, may be demonstrable by appropriate tests.

5. Paralytic myohæmoglobinuria. This disease, in which symptoms of paralysis or muscular weakness are associated with the presence of myohæmoglobin in the urine, is not uncommon in horses, but is rare in man. If it is suspected, the nature of the urinary pigment should be ascertained by spectroscopy.

If all these types of paroxysmal hæmoglobinuria can be excluded, and if the production of hæmoglobinuria by exercise can be demonstrated, a positive diagnosis of march hæmoglobinuria can be made, as in the following case.

Report of a Case.

Corporal B. enlisted in the Australian Military Forces in March, 1942, at the age of eighteen years and three months. He had seen no service outside Australia. His previous civilian occupation was that of radio technician. He had undergone tonsillectomy several years previously, and had suffered from mumps in 1942. He said that as long as he could remember he had had some difficulty in starting micturition, and some frequency (he passed urine five or six times during the day and three or four times at night). He attributed this to "bad kidneys"; but it is possible that the condition was of nervous origin.

In September, 1942, after more than usually strenuous military training exercises, he noticed that his urine was "dark", but as he felt otherwise quite well, and as the condition did not persist, he did not report this attack at the time. On January 15, 1943, another attack occurred, associated this time with some pain in the groins. Eight hours later he reported at the Australian general hospital in the country area where he was stationed. At the time when he reported his urine was normal in colour; but the

next day it was again "dark", and he was referred for further investigations to a base hospital, to which he was admitted on January 22.

The patient was a well-nourished young man, of average stature and physique. He appeared intelligent and cooperative, although shy and slightly nervous. He was not obviously ill, though he said that since the attack he had had on January 16, some aching pain had persisted in the loins. No abnormalities were detected on physical examination. There was no abnormal discoloration or microscopic evidence of abnormal constituents in the urine at the time of his admission or at any time during this period in hospital, except on two occasions the presence of occasional red cells in the centrifuged deposit. Repeated routine ward tests failed to detect any albuminuria or other chemical abnormality. His systolic blood pressure was 138 millimetres of mercury and his diastolic pressure 85; examination of his ocular fundi, the performance of urea clearance tests and microscopic examination of his urine on several occasions, all failed to provide evidence of renal disease. X-ray examination of the renal tract and excretion pyelography revealed no abnormalities. In view of these findings, he was discharged to his unit on February 3.

Three days after his return to camp another attack occurred, in which the passage of "dark" urine was associated with pain in the right loin. He was admitted to the local Australian general hospital on February 11. Again no abnormalities could be detected while he was in hospital, and he was discharged to his unit on February 23 pending examination by a medical board. On March 11 the board recommended his return to sedentary duties; but the Deputy Director of Medical Services instructed that the cause of the hæmaturia be further investigated with particular reference to the possibility of the presence of a papilloma. The patient was therefore again admitted to the base hospital on April 7 and remained there till April 24.

During this period, cystoscopic examination and ureteral catheterization revealed no abnormalities except the presence of eight to ten red cells per high-power field in the urine from the left kidney. The urine from the right kidney contained no red cells or abnormal pigments. No red cells or abnormal pigments were found in three other bladder specimens examined in the laboratory during this period.

While he was on leave after his discharge from hospital, he again passed "dark" urine, and on April 28 he consulted a civilian physician. The latter, who was not fully acquainted with the previous investigations, stated that a specimen of urine examined by him contained albumin and blood, which was mostly hæmolysed, but some red cells were present in the form of what he regarded as a blood cast. He suggested a diagnosis of nephritis and advised the patient's readmission to hospital.

The patient was therefore again admitted to the base hospital on May 1, and in view of the previous history the possibility of paroxysmal hæmoglobinuria was considered at this time, and appropriate investigations were planned. From May 1 to May 10 the patient was kept at rest, and no hæmoglobinuria occurred. On May 7 a Donath-Landsteiner test produced a negative result, and red cell fragility was within normal limits. On May 10 a brisk walk round the hospital grounds was followed by the passage of dark urine. On May 11 complete rest in bed was maintained, and the urine remained normal in colour. On May 12 walking was again followed by the passage of dark urine, which was shown spectroscopically to contain hæmoglobin and methæmoglobin. Serum from blood taken on this day (on which the weather was very cold) immediately after the walk gave a negative response to the Donath-Landsteiner test. The serum was not obviously hæmolysed, and there was insufficient bilirubin for quantitative estimation by the Van den Bergh test; but a small amount of hæmoglobin could be demonstrated spectroscopically.

The hæmoglobin level in capillary blood was 100% (14 grammes per 100 cubic centimetres) on May 5 and 105% on May 26. The leucocytes numbered 9,500 per cubic millimetre on May 19 and 7,400 on May 26, and the results of the differential counts were within normal limits. Reticulocytes constituted less than 1% of the red cells in counts made on May 18 and May 26. The Wassermann test on May 21 produced no reaction, and on May 24 the bleeding time and coagulation time were within normal limits. On May 21 Rosenbach's test was performed, the patient's hand being immersed in ice-cold water for ten minutes. In a sample taken immediately after it there was no hæmoglobinæmia obvious to the naked eye, and no hæmoglobinuria followed this test. On the same day, three hours later, a walk of three-quarter of an hour's duration was followed by hæmoglobinuria, the details of which are shown in Table I.

On May 27 the patient was temporarily discharged to a convalescent home. On his return to hospital on June 14, he said that while he was at the convalescent home he indulged in quite strenuous digging in the garden for continuous periods of two hours or more without the production of dark urine, although during his stay there walking for about half an hour had caused attacks on several occasions.

On June 14 physical examination and X-ray examination in the upright position failed to reveal any abnormal degree of lordosis. During the next few days further investigations (interrupted from June 17 to June 22 by an upper respira-

TABLE I.

Results of Examination of Urine Before and After Exercise Tests.

Date, and Form of Exercise.	Time of Collection of Specimens.	Urine.				
		Colour.	Spectroscopic Findings.	pH.	Albumin.	Red Cells in Centrifuged Deposit.
May 21, 1943. Brisk walk 3 to 3.45 p.m. (¾ hour).	2.55 p.m.	(ii) Pale normal.	—	—	—	—
	4.10 p.m.	(ii) Reddish brown.	Oxyhæmoglobin and a trace of met-hæmoglobin.	Acid to litmus.	—	One or two per high-power field.
	4.55 p.m.	(iii) Darker than (ii).	—	—	—	—
	7.50 p.m.	(iv) Still dark but less so than (iii).	—	—	—	—
	9.00 p.m.	(v) Almost normal.	—	—	—	—
	During the night.	(vi) Pale normal.	—	—	—	—
June 16, 1943. Brisk walk 3 to 3.15 p.m. (¼ hour).	2.55 p.m.	(i) Pale normal.	No blood pigments.	5	Trace.	One per two or three high-power fields.
	3.20 p.m.	(ii) Pale normal.	No blood pigments.	5	Trace.	Two to seven per high-power field.
	4.00 p.m.	(iii) Pae normal.	No blood pigments.	5	Trace.	—
	5.00 p.m.	(iv) Pale normal.	No blood pigments.	—	—	—
June 23, 1943. Brisk walk 3 to 3.30 p.m. (½ hour).	2.55 p.m.	(i) Pale normal.	No blood pigments.	7·4	Trace.	No red cells seen.
	3.35 p.m.	(ii) Pale normal.	No blood pigments.	7·2	+	One to four per high-power field.
	4.30 p.m.	(iii) Pale normal.	No blood pigments.	5·0	+	One per seven or eight high-power fields.
June 25, 1943. Brisk walk 2.30 to 3.30 p.m. (1 hour).	2.25 p.m.	(i) Pale normal.	No blood pigments.[1]	7·0	Trace.	No red cells seen.
	3.35 p.m.	(ii) Dark red.	Oxyhæmoglobin pigments.	—	+	One to four per high-power field.
	5.10 p.m.	(iii) Dark—less so than (ii).	Oxyhæmoglobin pigments.	—	+	—
	6.10 p.m.	(iv) Normal.	No blood pigments.	6·0	Trace.	—

[1] The spectroscopic examinations on this date were made by Mr. F. H. Holden, of the Walter and Eliza Hall Institute, who stated that the pigment present in samples (ii) and (iii) was blood oxyhæmoglobin, not myohæmoglobin. He stated also that when specimen (iii) "was treated with $Na_2S_2O_4$, ammonia and CO, there developed in addition to HbCO a very faint band in the red, too faint for measurement on the reversion spectroscope. This might bear some relationship to Methæmalbumen or to one of the chole-globin type compounds described by Lemberg." Mr. Holden also reported that the plasma of samples of blood taken immediately before and immediately after exercise on this day both contained "a little normal oxyhæmoglobin, the one before nearly as much as the one after".

tory tract infection) were carried out to determine the amount of exercise required to produce an attack of hæmoglobinuria. The results, which are shown in detail in Table I, indicate that at this time the patient's limit of tolerance was between half an hour and one hour.

In view of the slight albuminuria present both before and after exercise during the daytime while the patient was up, two specimens passed immediately on rising were examined. They contained no albumin. This confirmation of previous ward tests made during earlier periods in hospital when the patient was in bed indicate that the albuminuria was of orthostatic type. The patient was discharged to his unit on July 19.

Summary.

1. The salient features of march hæmoglobinuria are discussed and a typical case is described.

2. It is pointed out that the usual programme of investigations designed to demonstrate or exclude the more common causes of hæmaturia or the presence of abnormal pigments in the urine is almost certain to be carried out with the patient at rest. By virtue of this fact, a sojourn in hospital for investigation will actually tend to prevent the occurrence of march hæmoglobinuria, and so fail to reveal the symptoms of which the patient complains. Unless, therefore, the possibility of this condition, which at least in its severe forms is rare, is kept in mind, considerable difficulty and delay may occur in confirming the patient's statements and establishing the diagnosis.

Acknowledgements.

My thanks are due to Major-General S. R. Burston, Director-General of Medical Services, for permission to publish this paper. I am indebted to Lieutenant-Colonel E. T. T. Downie, Officer Commanding the Medical Division, and Major K. F. O'Donnell, who was in charge of the patient during the period when the diagnosis was made, for giving me access to the clinical notes on the case described.

References.

(1) D. R. Gilligan and H. L. Blumgart: "March Hæmoglobinuria", *Medicine*, Volume XX, 1941, page 341.
(2) L. J. Witts: "The Paroxysmal Hæmoglobinurias", *The Lancet*, Volume II, 1936, page 115.

SOME OBSERVATIONS ON TUBERCULOSIS CONTROL.

By HILARY ROCHE,
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VICTORIA has the highest tuberculosis death rate of the mainland States. The rate in Queensland in 1942 was 32 per 100,000, in New South Wales 37, and in Victoria 44·7. About one-third of all Australian deaths from tuberculosis occur in this State. The increase in the death rate since 1939, and the harmful effect of the disease on the war effort, together with the discovery of new cases by mass radiography (fluorography), are urgent reasons for a review of the situation and for the consideration of proposals to deal with the problem. Further, the population of Australia is so unsatisfactory in relation to world conditions that, apart from individual and humane considerations, we cannot allow lives to be squandered by a disease which is just as preventible as typhoid fever or diphtheria. Victoria had, in 1941, a death rate of 45·2 per 100,000, slightly higher than the total rate (44·4) for the United States of America, including its large Negro, Indian, Mexican and Asiatic population, and 29·1% higher than the estimated rate for its white population. With this and other facts in mind, and with the impression that relatively little use appears to have been made in Australia of active methods of treatment in pulmonary tuberculosis, I have set out the following observations.

The tuberculosis problem can be considered from two broad aspects: (i) infection; the seed; (ii) environment; the soil. Our objectives in an anti-tuberculosis campaign are to eliminate infection as far as possible and to render the environment unfavourable for the development of the disease. An anti-tuberculosis programme will, therefore, embody the following: (i) measures directed especially against the infection factor; (ii) measures directed towards improvement of environment, individual and collective; (iii) measures to secure the cooperation of all concerned.

MEASURES DIRECTED AGAINST INFECTION.

Legislation.

The first legislative measure should be the assumption of powers of compulsory examination of "suspects", and of detention in institutions of persons with active lesions. Such powers are needed for certain types of patients, such as the non-cooperative, those with unhygienic home environment, the elderly indigent *et cetera*.

The second legislative measure should be the compulsory pasteurization of milk and the enforced distribution of milk in sterilized bottles with the "crown", or "press-on" metal cap, type of cover, instead of press-in disks.

Widespread Use of Fluorography.

The widespread use of fluorography would result in the discovery of many new cases still in the "early" stages. Its limited use in Ontario reduced by 8% the number of patients with far-advanced lesions admitted to sanatoria in 1941, as compared with 1940. It involves (*a*) the installation of several units and (*b*) the X-ray survey of selected groups.

Apparatus for the 35 millimetre or four inch by five inch film should be installed in the metropolitan general hospitals and larger provincial hospitals, at the Women's Hospital, at tuberculosis dispensaries and in mobile units. A mobile unit could be used, as in Ontario, for survey work in factories and commercial organizations in Melbourne, and so save the employees' time. X-ray apparatus should be combined with laboratory equipment in motor-vans, to provide a countrywide diagnostic service for all chest complaints. To begin with, two such vans might be acquired for use outside the metropolis in Victoria. If, during the war, physicians for this service cannot be obtained, a tuberculosis nurse for history taking *et cetera* and a technician could operate these units.

X-ray surveys of selected groups (in addition to all home and other contacts) should be made. Among these would be persons in industries involving exposure to silica dust, workers in defence industries, members of the merchant marine, all pregnant women (as a routine measure) *et cetera*, with eventual extension to the whole adolescent and adult population. Experience and practicability would determine the desirable frequency of such examinations.

Legal powers of compulsion are necessary to give the community full protection.

Free Laboratory Service.

Free laboratory facilities for suspected and known cases should be provided, as in Ontario, as well as tuberculin for testing.

Provision of Sufficient Beds.

There should be sufficient beds to allow of treatment without delay. "There is no sense in extending the hand of discovery and withholding the hand of treatment."(1) What is a sufficient number of beds? The Canadian and American "recommended" rate is three beds per annual death. The experience of Ontario, where this rate has for some years been exceeded, and of other States, where it has been reached, shows that it is not too high—and this was before the introduction of fluorography. In Ontario, additional beds are to be provided, and this will bring the bed to death ratio there to almost four to one. In those States where there are fewer than three beds per annual death, sanatoria have waiting lists, and the duration of institutional treatment has to be curtailed. As two of the main objectives of a modern sanatorium programme are (i) segregation from the community of patients with active lesions and (ii) the rendering of patients' sputum free from tubercle bacilli, the existence of waiting lists and short duration of residential treatment are the direct antitheses of such a plan.

American authorities[3] estimate that among the white population of the United States of America there are nine or ten patients with active tuberculous lesions living for each annual death. In Victoria in 1942, there were 879 deaths from tuberculosis. This, on the estimate just mentioned, would give a total of 7,900 to 8,800 persons with the disease in an active form. This is approximately 0·55% to 0·62% of the State's population over fourteen years of age. An X-ray survey carried out in the Canadian province of Saskatchewan has given significant results as regards the amount of active disease in a community. In Saskatchewan in 1941 and 1942, the splendid achievement was recorded of making an X-ray survey of 12·5% of the 905,974 persons in that State. With the addition of the new infections discovered to those already known, a tentative rate for Saskatchewan of 2·41 persons per 1,000 with active disease was obtained. The Victorian tuberculosis death rate is 37·1% higher than that of Saskatchewan. On this basis, the rate for active disease in Victoria would be approximately 3·80 persons per 1,000, or a total of about 5,000 persons, almost six per annual death. The true figure, therefore, would probably be between 5,000 and 8,000 persons. If, therefore, this State provides 2,600 beds, this would not be excessive to cope with the number of tuberculosis patients who should be treated.

Table I shows the reduced death rates in Ontario and three American States, with which I am acquainted, and which have "bed to death" ratios of higher than 2·5 to one, compared with Victoria.

Replanning of Bed Facilities.

Present and new accommodation must be planned according to modern ideas. A ratio of three beds per annual death would require nearly 3,100 beds in New South Wales, 2,600 beds in Victoria, 1,000 in Queensland, 750 in South Australia, 600 in Western Australia, and 400 in Tasmania, or about 8,500 at the same rate for the Commonwealth. Of these beds, 20% could be allotted for hostels, or night sanatoria, metropolitan and provincial. This is an economical and satisfactory way of dealing during rehabilitation with convalescent patients from sanatoria whose lesions are quiescent, and with a few patients with chronic, active, non-progressive lesions, who are capable of work, and of providing supervision and modified care of some symptomless patients aged over twenty-five years, discovered by mass fluorography. (Under the age of twenty-five years, such persons would benefit most from close sanatorium supervision.) Hostels afford a sheltered environment for the working patient, adequate diet, facilities for rest, education in hygienic living, and medical supervision.

A percentage of beds, 5% of the total accommodation of State mental hospitals, would have to be apportioned to a special sanatorium for the tuberculous insane. In Victoria this would require at least 10% of the total number of beds for the tuberculous. A special sanatorium for the tuberculous insane should be created in each of the mainland States. These persons are a menace to other patients and to asylum staffs. In 1941 pulmonary tuberculosis caused 5% of the deaths in Victorian State mental institutions. The advantages of a special sanatorium over isolation in special wards in mental hospitals are the following: (i) It is difficult to deal with patients suffering from many different types of mental disorder in a restricted isolation ward of a mental hospital. (ii) Mental hospital doctors are not trained in tuberculosis; therefore special treatment may not be given which will arrest the tuberculosis. In 1940, in Ontario, 10% of the tuberculous patients with mental disorders were being treated by artificial pneumothorax. It has been found there that recoveries from tuberculosis as well as the mental condition occur when skilled treatment for both is available. In the special sanatorium in Ontario, with 560 beds for a population double that of Victoria's, the medical staff consists of tuberculosis specialists with experience of mental disorders, as well as psychiatrists.

A further 10% of the beds should be assigned to a village settlement, or colony, for patients with chronic, active, non-progressive lesions, and for a few convalescent patients. This settlement should be developed in connexion with the main hospital sanatorium for male patients. Female patients would be admitted. Admission in all cases would be confined to patients who had passed through a sanatorium and had been found suitable, medically and otherwise. Unmarried patients would live in hostels in the settlement, married patients with their families in individual homes. As at Papworth, various industries would be developed in the settlement.

In so far as Victoria is concerned, I should advocate that the remaining beds be distributed as follows: 5% divided among the country base hospitals and provincial towns, and the remaining 55% in two large metropolitan sanatoria, for male and female patients. The extra-metropolitan beds should be used for segregation and not for treatment. Records of patients admitted to these beds would have to be submitted to the central tuberculosis bureau, and the patient would be transferred to town, should special treatment be indicated. The management of tuberculosis has become so specialized that the best

TABLE I.

State.	Population.	Tuberculosis Deaths.	State Government Beds.	Ratio of Beds to Deaths.	Death Rate per 100,000.
New York (New York City excluded) ..	7,000,000	2,519	5,472	2·5 : 1	31·7 (1940)
Michigan (centre of automobile industry)	5,435,000	1,723	4,742	2·75 : 1 increased to 2·9 in 1942	31·7 (1941)
Connecticut (important manufacturing State).	1,700,000	586	1,400 increased in 1942 to 1,876	2·8 : 1	32·4 (1939)
				Now over 3 : 1.	33·4 (1941)
Victoria[1]	1,900,000	879 (1942)	In 1942, 1,000 beds—700 State sanatorium beds, 200 repatriation beds, 100 State beds for non-pulmonary tuberculosis.	Just over 1 : 1 (all forms, and State and Federal Beds)	44·7 (1942)
				or 700 to 791, less than 1 : 1 (State beds for lung tuberculosis only.)	
		811 (1940)	540 beds for lung tuberculosis.		42·8 (1940)
Ontario Province (industrial, mining and agricultural) with climate favourable to spread of tuberculosis	3,757,000	1,003	3,716 (1940)	3·7 : 1	26·7 (1940)

[1] In Victoria (as in the overseas States mentioned) the death rate from tuberculosis is given as for "all forms", since this indicates most accurately the amount of fatal infection originating from human sputum. Reginald Webster[4] states in his "Studies in Tuberculosis" that "bone and joint tuberculosis in this country is to be traced to human sources of infection; the bovine bacillus has little or no part in osseous tuberculosis, despite a widespread impression to the contrary". In a survey in 1938 and 1939 he found no adults and less than 9% of children with tuberculous lesions (all in the tonsils, or neck, or abdominal glands) of bovine origin. The vast majority of deaths from all forms of tuberculosis in this State are, therefore, due to the human bacillus, and their origin is infective sputum. I believe that the facts previously mentioned confirm the necessity for a ratio of at least three beds per annual death if we are to save life and control the disease within a reasonable time.

results can be obtained from centralization. The modern sanatorium programme, involving greatly increased use of collapse and ancillary methods of treatment, together with a full rehabilitation scheme, can be organized much more efficiently in large establishments. Further, dispersal of beds into small units is not economical. In the large sanatorium the members of the medical staff have all the advantages of group practice, and the patients benefit from the pooled experience of a team of experts. Further, these large, self-contained hospital sanatoria are more suitable than small institutions for student and post-graduate instruction in tuberculosis.

Each large sanatorium could be staffed by a team of resident specialists—internist, psychologist, laryngo-bronchoscopist, surgeon, anæsthetist radiologist, medical administrator *et cetera*—each of whom would be trained both in tuberculosis and in one other specialty. Each would be in charge of a proportion of the general sanatorium beds. In addition, there could be, as at Hamilton, Ontario, a biochemist, a pathologist, a full-time dentist and several technicians, as well as a visiting staff of consultants.

In these large sanatoria it would be possible to provide separate accommodation for different types of patients; for example, for patients with pleural effusion but no "open" lung lesion; for elderly patients not requiring special medical or nursing care, and for whom certain strict sanatorium practices could be relaxed; for patients requiring special diets (diabetics, those suffering from intestinal tuberculosis *et cetera*); and single-bed rooms for patients with the disease in a hopeless form in the last stages *et cetera*. Infants and young children would be treated in a section of the sanatorium for female patients, where kindergarten and teaching facilities would be available. Each sanatorium would become a centre for surgical treatment for the State. Further, all adult patients with non-pulmonary tuberculosis would likewise be cared for in these sanatoria, in units separate from those with pulmonary disease. Thus, these patients would have all the advantages, especially educational, and the facilities for rehabilitation provided by the tuberculosis service. As Reginald Webster has pointed out,[6] these patients have been infected from human and not bovine sources, and should, I consider, be looked after by the State tuberculosis department, as in Ontario.

Protection of Infants in Tuberculous Households.

In each State provision should be made, as in Ontario, for infants born of tuberculous mothers. There, the health authorities insist that the infant shall have no contact with the mother after birth. It is placed in a special home unless it can be well cared for in some other non-infective atmosphere.

The Care of Tuberculous Ex-Service Men and Women.

The care of tuberculous ex-service men and women should be undertaken by the State tuberculosis department, as in Ontario, since this organization, when completed, will have superior facilities for treatment to those of the Repatriation Department.

Modifications in Treatment of Pulmonary Tuberculosis.

Greater Application of the Rest Principle.

Stricter adherence to the rest principle as the basic factor of treatment will result in a higher percentage of lesions becoming quiescent. Kayne, Pagel and O'Shaughnessy[9] point out that tuberculosis of the lungs demands "combined intensive treatment"—that is, prolonged bed rest with all applicable "collapse" measures. Whereas in the United States of America and Canada great stress has been laid on the importance of such prolonged rest, English text-books have tended to give too much prominence to the use of graduated exercise, and to over-emphasize the value of the thermometer as a guide in the control of rest and exercise. The thermometer is, in fact, about as reliable a guide in treatment as the stethoscope is in diagnosis. Dunlop, Davidson and McNee,[8] as well as the authors just mentioned, are among those who advocate the control of rest and exercise by every available means—for example, recording of temperature, pulse rate, weight and symptoms, the taking of serial X-ray films, repeated estimations of the blood sedimentation rate and differential white blood cell counts *et cetera*. They point out that "to give insufficient rest is the commonest mistake in the treatment of the condition". The policy of prolonged rest after defervescence should, of course, be strictly applied only to patients who have a reasonable hope of improvement. For these patients, graduated exercise should be used, as in Ontario and most of the United States of America, only as a final "toning up" process after quiescence of the disease has been definitely achieved.

Greater Application of Modern Special Methods.

There should be a greater application of modern special methods than in the past, to bring Australia into conformity with practice overseas. I do not know the exact situation in other States, but I believe that it is not different from that of Victoria. During the five years before the outbreak of the present war, on a basis of percentage of admissions, thoracoplasty was used in 100 Canadian and American sanatoria four times more frequently than in Victorian State sanatoria. Artificial pneumothorax and phrenic nerve paralysis were employed five times more frequently. Adhesion section, which is required in from 40% to 70% of cases of artificial pneumothorax, had been used very little in Victoria prior to 1942.

There is a limited scope for intracavity suction drainage, and for pneumoperitoneum in association with phrenic nerve paralysis, and a still smaller but definite place for extrapleural pneumothorax, lobectomy and pneumonectomy.

The much wider use, here, of all these special methods is indicated, especially on account of their help in freeing the sputum from tubercle bacilli, or in causing it to disappear altogether.

In the great majority of cases the source of sputum containing tubercle bacilli is the cavity; only a small minority of cavities heal spontaneously and remain healed. "There can be little doubt among those who study ultimate results that a persistent cavity almost always implies an equally persistent risk of eventual disaster."[7]

The value of "collapse" and ancillary methods of treatment in freeing sputum from tubercle bacilli and in improving the survival rate of patients discharged from sanatoria has been shown from British, American and European statistics. The most important single factor in prognosis is the bacillary content of the sputum on the patient's discharge from hospital. Apart from the individual patient, freedom of the sputum from tubercle bacilli is of the greatest importance from the public health point of view. With the increased use of special methods the survival rate of our patients will improve, and there will be less dissemination of the disease among the community.

Preventive Inoculation.

The question of preventive inoculation with "B.C.G." vaccine of persons such as nursing trainees exposed to infection, who fail to react to tuberculin, should be seriously considered. Its use in this regard in Norway and Canada appears to have given satisfactory results.

Measures Directed to Improvement of Environment, Individual and Collective.

Legislation: Financial Measures.

Adequate allowances should be made to patients' dependants, as in Ontario. Additional allowances should be made to the patient unable to work, for extra food, clothing and other necessities, to supplement invalid pension. Such allowances in Ontario are believed to have been an important factor in reducing the incidence of relapse among discharged patients. Full wages for part-time workers should be maintained, as in the Soviet Union. The public health grant from the treasury should be greatly increased, to allow of the application of the full programme. In 1941, the province of Ontario spent about 3% of its income on tuberculosis alone.

Complete Reorganization of our Sanatorium System.

The modern sanatorium should no longer be regarded as a rest home in the country where the patient learns about hygienic living and where a few pneumothorax treatments are given. It should be more in the nature of a well-equipped general hospital with a numerous and highly trained staff. Kayne, Pagel and O'Shaughnessy[6] suggest that the title "sanatorium" should be replaced by "hospital" in order to impress on the medical profession and the public the great changes which have taken place since the 1920's in the treatment of tuberculosis. Reorganization would involve the following factors.

1. Greatly increased expenditure on the sanatorium. The annual *per capita* costs in equivalent spending power in the period 1939-1940 were, in Ontario £205, at Michigen State Sanatorium £211, in New York State £238, in Connecticut £242 and in Victoria about £115. "Public health is purchasable. Within natural limitations every country conditions its own death rate."

2. Improved apparatus and equipment, including the best available X-ray apparatus. Radiographic examination of the chest demands generators and tubes capable of giving the best results with exposures of at least one-twentieth of a second at a tube-film distance of six feet.

3. Staff change. The first such change would be an increased ratio of staff to patients, one member of the staff for every two patients. As regards medical staff, there should be at least one full-time resident doctor to every fifty patients. The ratio of nurses to patients should be, as in Ontario, one to six. Two-thirds of the nurses in Ontario are fully trained. All routine laboratory and X-ray work should be done by technicians, so that medical officers would be free for purely medical duties. Higher salaries and improved conditions should be created, in order to attract to the government tuberculosis service men and women who would otherwise be attracted by the (at present) much greater financial rewards of private practice. All members of the service should be full-time workers, without private practice. Superannuation should be provided for all personnel of the tuberculosis service. Leave of absence with full salary and travelling allowances should be accorded to selected members of the medical staff of the service, so that they might go abroad for post-graduate study. This is necessary owing to the geographical isolation of Australia and the highly specialized nature of the care of the tuberculous. A panel of visiting specialists should be available for the sanatoria, as under the London County Council scheme. This would include a full-time dentist at each of the large sanatoria. All specialists would have to be adequately paid.

There should be enough surgical work in Victorian State sanatoria to keep a full-time thoracic surgeon (or two half-time surgeons) fully occupied, as in the State of Connecticut, which has a population smaller by 200,000 than Victoria and a much lower death rate from tuberculosis.

Weekly meetings should be held at the sanatoria of the full resident and some of the visiting staff. At these meetings every patient's case would be discussed soon after his admission, again at least every three months, and when any special indications arose, as in Ontario.

4. Prolongation of stay in sanatorium. The average length of stay of a selected group of patients in Victoria was seven months, the actual average being less. Such short stays account for a higher percentage of readmissions and ultimately fatal results. According to experience in Ontario, patients with minimal lesions may require a year or longer, patients with far-advanced lesions at least three years. The average stay in the Connecticut State sanatoria (1938-1939) was 14·8 months, and in the Michigan State sanatorium (476 beds) in 1941-1942, about 14·5 months. Prolongation of stay has a twofold value—one to the individual, who is thereby given a greater chance of recovery, the other to the community, which is protected by the retention in sanatoria of persons whose sputum contains tubercle bacilli. In a review five years later of 6,906 patients discharged in 1933 from 75 American sanatoria, Whitney and Dempsy[8] found that the chance of survival increased with the length of stay at least up to a period of two years.

Rehabilitation.

Rehabilitation would include, first of all, full educational facilities, of the following types: (i) kindergarten, primary, secondary, university and "adult"; (ii) vocational (preparation for civil service, accountancy, dispensing, shorthand, secretarial work, dressmaking, radio engineering, draftsmanship, decorating, workshop activities *et cetera*); (iii) cultural (music, literature, drawing, foreign languages *et cetera*). Occupational therapy would be provided as a diversion and as a preparation for a vocation.

A rehabilitation service should be created, under a full-time director. This service would work in close collaboration with the sanatoria medical staff, sanatoria educational department, technical colleges and employment agencies. Such a service in Connecticut and other American States provides vocational adjustment, guidance and placement in suitable employment. The work is highly individualized. The patient's employable assets have to be assessed, and a programme has to be planned compatible with his or her physical condition and with the assurance of ultimate employment.

Improved Economic Conditions.

Owing to the important part played by poverty in the ætiology of tuberculosis, everything designed to improve economic and social conditions will reduce the incidence of the disease.

Measures to Secure the Cooperation of all Concerned.

Increased propaganda should be carried on amongst the members of the public through radio, Press and motion picture. A higher standard of personal hygiene should be aimed at, with special emphasis on the dangers of "droplet infection" from careless sneezing and coughing, in the spread of respiratory infections. The means of preventing tuberculosis, the importance of its early diagnosis, and the value of prompt treatment should be constantly made public.

Propaganda should be employed amonst the members of the medical profession to obtain full cooperation in all the activities of the tuberculosis service. Special stress should be laid on the importance of the notification of all cases.

Better facilities should be provided for the study of the disease by students and nursing trainees, and by doctors and nurses after the completion of their training.

A national tuberculosis association similar to those in Britain, Canada and the United States of America should be created for the Commonwealth, with branches in each State. It would consist of medical and lay members specially interested in tuberculosis. It would play an important role in arousing the interest of the public, in setting up standards and in advising governments.

Educational reforms would have a beneficial long-term result. Such reforms would include (i) a higher standard of general education (better educated communities are likely to be more cooperative) and (ii) education at school in the fundamentals of anatomy, physiology, biology, hygiene and dietetics.

Finally, statistical control of all the activities of the tuberculosis service are extremely important for all future planning.

Summary.

The control of tuberculosis has been discussed, particularly with regard to the State of Victoria. Special reference has been made to Canadian achievements in prevention of the disease. The necessity of providing at least three beds per annual death has been stressed. Reasons are advanced for using the death rate from all forms of the disease to indicate most accurately the amount of infection of the human type in the community. Centralization of bed facilities is advocated. The advantages of large sanatoria and the reorganization of the sanatorium system are dealt with. It is proposed that all forms of tuberculosis be treated in the State sanatoria. The provision of a sanatorium for the tuberculous insane is suggested. The creation of hostels or night sanatoria and of a village settlement is advised. A plea is made for the greater use of rest for patients likely to respond well to treatment. The much more general employment of special methods

of treatment is urged. The certain proposed measures for legislation are set forth. The importance of a rehabilitation service is emphasized. The creation of a national tuberculosis association is recommended.

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AN EXPERIMENT ON THE COMPLETE TRANSFORMATION OF THE SCROTUM INTO A MARSUPIAL POUCH IN TRICHOSURUS VULPECULA.

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THE Virginia opposum, *Didelphys Virginiana* Kerr, of the polyprotodont sub-order, and the only marsupial found on the North American continent, has been studied extensively with regard to its response to sex hormones.[1][2][3][4] This work has led to a far-reaching understanding of the response of the internal sex organs, but only negative findings were recorded with regard to external structures such as the pouch and the scrotum.[1][2] On the other hand, investigations on a representative of the diprotodontic Australian marsupials, *Trichosurus vulpecula*, the common or grey possum, showed a marked response to sex hormones by the pouch and the scrotum.[3][6][7][8] These observations suggested a close relationship between pouch and scrotum, and it was found to be possible to produce a structure in young males resembling a pouch by the administration of female sex hormone. The resemblance became even more pronounced when, prior to the administration of the œstrogenic substance, the tip of the scrotum was removed surgically.

In criticizing these latter experiments, it may be pointed out that some of the scrotal tissue had been removed and that these animals died a few days or weeks after the pouch had been established, and that they gave no indication as to whether this structure strongly resembling a pouch was a comparatively permanent one or only short-lived, and partially conditioned by the subnormal state of these animals.

FIGURE I.
Schematic drawing representing normal scrotum of *Trichosurus vulpecula*.

Consequently, a few experiments of long duration were performed on males sufficiently young to react markedly to the hormone administered, but also sufficiently grown up to withstand the toxic influences resulting from the injection of œstrogens. On this occasion none of the scrotal tissue was amputated, but the testes were removed through an incision into the scrotal sac and subsequently œstrogens were injected in moderately large doses.

The result of one of these experiments was the complete disappearance of the scrotum and in its place the formation of a pouch, similar to that seen in the fully grown female *Trichosurus vulpecula*, which persisted for almost a year after the cessation of œstrogen administration. This inversion of the scrotum into a pouch is depicted schematically in Figures I and II, and the experimental details of such a transformation of a male into a female structure now follow.

FIGURE II.
Schematic drawing representing cross section through the pouch of a nearly fully grown female. The two black dots in the interior of the pouch represent the breast nipples.

Experimental Investigation.

On October 6, 1942, an approximately half-grown male, six months of age, weighing 950 grammes, had both testes removed. The left testicle was amputated through an incision near the tip of the scrotum and the right testicle was removed through an incision nearer to the neck of the scrotum. On October 8, 1942, weekly injections of œstradiol dipropionate ("Ovocyclin", Ciba) were begun and maintained for six weeks. After an interval of about a month further injections were given. All injections of œstradiol dipropionate given and their dosage are listed in the following tabulation:

October 8, 1942	0·1 milligramme
October 15, 1942	0·2 milligramme
October 22, 1942	0·5 milligramme
October 29, 1942	0·75 milligramme
November 5, 1942	0·75 milligramme
November 12, 1942	0·75 milligramme
December 17, 1942	0·5 milligramme
December 29, 1942	1·0 milligramme
January 25, 1943	1·0 milligramme

After the first injection of 0·1 milligramme of female sex hormone, the response of the scrotum was the same as it would have been had the testes been present—that is, after a short period of swelling lasting for about five days the scrotum began to contract, and folds indicating the formation of a rudimentary pouch appeared. After a second injection (0·2 milligramme) one week after the first injection, the scrotum again increased in size for a few days, and the folds indicating the formation of a pouch diminished. A total of six weekly injections of a total of 3·05 milligrammes of œstradiol dipropionate produced ultimately a well-defined pouch as shown in Figure III.

FIGURE III.
Cross section through artificial pouch produced in male *Trichosurus vulpecula*.

The scrotal remnant, however, still protruded from the pouch for one or two millimetres, but it had shrivelled up to a thin tongue-like structure of about the width of the pouch formed. In addition, the interior of the pouch and the scrotal remnant contained in it was covered with spots of a reddish pigment similar to that seen in the pouch of normal sexually mature females at the time of the breeding season.

On December 17, 1942, after a period of one month, during which time no further injections were given, it was found that the scrotal remnant was increasing in size and that the pouch became less pronounced. Consequently, three more injections of œstradiol dipropionate were given over a period of approximately two months. Already during the period in which the injections were given and for at least six months afterwards, the scrotal remnant became completely inverted, and the lips of the pouch formed approximated each other and the external appearance of a pouch as seen in females was produced (Figure IV). The lips of this artificial pouch contained a sphincter-like band of muscle corresponding to the *sphincter marsupii*

as found in females. Internally the artificial pouch had some definite capacity, and the animal was able to retain in it as much as three millilitres of water.

When the interior was inspected, it was observed that the right section of the pouch cavity was smooth and smaller than the left section, which contained on its floor an elevation resembling a mammary gland as seen in a normal female (Figure II). This structure represented the tip of the original scrotum and was frequently found to be covered by reddish-brown spots of pigment.

FIGURE IV.

Photograph showing the partial conversion of the scrotum into a pouch after the administration of three milligrammes of œstradiol dipropionate. The length of the pouch is about four centimetres. In between the lips of the artificial pouch a tongue-like remnant of the original scrotum is still protruding at this stage of the experiment. The hairs around the scroto-marsupial area have been clipped.

In addition to the changes in the scrotal area, the whole of the animal presented a noteworthy appearance. Throughout the entire experiment it remained somewhat stunted in growth, owing to the administration of large amounts of œstrogen during adolescence; but the animal increased markedly in body weight after the cessation of œstrogen administration. On January 25, 1943, its body weight was 1·54 kilograms, on September 9, 1943, it was 2·57 kilograms, and on January 24, 1944, it was 2·94 kilograms. Even at this late stage the possum was only about two-thirds to three-quarters the size of a fully grown animal of similar age, and its weight was about 50% in excess of animals of similar size. The increase in body weight was to a considerable extent due to the deposition of fat, and particularly due to the formation of a thick *panniculus adiposus*. In addition there was considerable muscular development, as evidenced by the appearance and strength of the animal. This was particularly noticeable with regard to the skin muscle, which after its increase in thickness in the artificial pouch area seemed to thicken over the whole of the animal.

The animal became excitable and pugnacious. On the other hand, its voice had more of the high-pitched cry of the female than the grunting of the male. In the course of this experiment the pelt went through a number of stages. During the first few months it turned from its characteristic grey colour into a mousy grey. However, soon afterwards the colour altered to a shiny black with white tips at the end of most of the individual hairs. This type of fur with its lustrous black, dense but fine hair, had a female or even an exaggerated female appearance, compared with the more brownish and coarser fur of the fully grown male. Similar alterations in the appearance of the fur had been noticed in other experiments in which considerable amounts of œstrogen had been administered.

The pouch as described persisted for about five months in this comparatively high form of perfection. Then it slowly deteriorated, in so far as the lips which were practically approximated became separated and the scrotal remnant began to evert again.

On February 24, 1944, more than a year after the last injection of œstrogen, the scrotum had reformed, and the pouch had practically disappeared, becoming evident only when the animal was struggling. The scrotum, however, consisted of a thin tag of tissue about two centimetres in maximal length. It was irregular in shape, inasmuch as its tip was on the left side and not in the centre of the caudal end of the sac. When lifted sideways it formed a triangle (Figure VI).

FIGURE V.

Photograph showing the complete conversion of the scrotum into a pouch after the administration of 5·5 milligrammes of œstrogen. At this stage no scrotal remnant can be seen, and the lips of the artificial pouch approximate each other completely, giving the animal the appearance of a female. The hairs around the artificial pouch have been shaved off.

Discussion.

Several years ago it was noticed that the administration of œstrogens to the male Australian possum (*Trichosurus vulpecula*) brought on a shortening of the scrotal neck followed by a contraction of the scrotal sac and diminution of the size of the testes. Then, a few weeks after the experiment was begun, the testes might leave the scrotum and ascend to a position beneath the abdominal skin. Simultaneously the scrotum, which was originally pear-shaped with maximum length approximately eight centimetres, maximum breadth approximately four centimetres and maximum width approximately three centimetres, contracted further to a small heap of wrinkled tissue about one or two centimetres in diameter. As found in about twenty experiments, folds which resembled a pouch to a varying degree appeared laterally and caudally to the collapsed scrotum.

FIGURE VI.

The reformed scrotum after most of the artificial pouch had disappeared. As shown in the drawing, the resulting tag of thin scrotal tissue has been lifted sideways in order to demonstrate its shape. The folds indicating the remnants of the artificial pouch have been outlined also.

These experiments suggested that the scrotum was an eversion and the pouch an invagination of the scroto-marsupial area, which on previous occasions had been defined as the area on the lower part of the ventral abdominal wall where the pouch is situated in the female and the prepenial scrotum is situated in the male. It was held, however, that further evidence in favour of this hypothesis could be adduced by removal of the testes, because of their antagonistic influence towards the artificial creation of an essentially female organ.

Such an experimental approach finally proved successful, inasmuch as a complete inversion of the scrotum was accomplished.

On inspection, this artificial pouch formed in the male resembled externally the pouch as seen in a normal female, to such an extent that observers not familiar with the history of the animal considered it to be a female. On the other hand, the size of the pouch was found to be only about two-thirds that of a non-pregnant female of about similar age. The fact that the administration of œstrogens produces a contraction of the pouch in the normal female may have some bearing on this matter. Furthermore, the artificial pouch created was asymmetrical internally, owing to the fact that the tip of the original scrotum became situated in the left half of the cavity.

It may also be pointed out that if the scrotum is an eversion of the pouch it should be expected that some trace of the breast nipples contained in the pouch could be found on the surface of the scrotum or somewhere along the septum which separates the two scrotal sections; but so far no evidence of nipples has been found in males on or within the scrotum or in any other location.

In passing, it is interesting to note that the fur of this and other animals treated with œstrogens became dark, thick and glistening, presenting an exaggerated female appearance. The improvement of the quality of the fur may be of some economic significance.

From a scientific point of view, the outstanding feature of the present experiment is its completeness; it leads up to the transformation of a male organ into a female one in a practically fully grown animal under most favourable conditions. For example, the animal not only survived the experiment in the best of health, but it also lived long enough to make possible, after nearly a year, observations on the transformation of the artificial pouch back into a scrotum. This experiment, therefore, is conclusive proof that pouch and scrotum are homologous, the former being an invagination of the latter.

Summary.

The administration of an œstrogen, œstradiol dipropionate, to a gonadectomized male marsupial, *Trichosurus vulpecula*, brought on a complete transformation of the scrotum into a pouch. The pouch formed persisted for several months and then reformed again into a scrotum. The general health of the animal was not impaired by the experiment and the fur became thick and took on a feminine appearance.[1]

References.

(1) R. K. Burns: "The Differentiation of Sex in the Opossum (Didelphys Virginiana) and its Modification by the Male Hormone Testosterone Propionate", *Journal of Morphology*, Volume LXV, 1939, page 79.

(2) R. K. Burns: "Sex Differentiation during the Early Pouch Stages of the Opossum (Didelphys Virginiana) and a Comparison of the Anatomical Changes Induced by Male and Female Sex Hormones", *Journal of Morphology*, Volume LXV, 1939, page 497.

(3) C. R. Moore: "Modification of Sexual Development in the Opossum by Sex Hormones", *Proceedings of the Society for Experimental Biology and Medicine*, April, 1939, page 544.

(4) C. R. Moore: "On the Role of Sex Hormones in Sex Differentiation in the Opossum (Didelphys Virginiana)", *Physiological Zoology*, Volume XIV, January, 1941, page 1.

(5) A. Bolliger and A. Carrodus: "Experimental Testicular Ascent as Produced in a Marsupial (Trichosurus Vulpecula)", *The Australian and New Zealand Journal of Surgery*, Volume IX, Number 2, October, 1939, page 155.

(6) A. Bolliger and A. J. Canny: "The Effect of the Synthetic Œstrogens, Stilbœstrol and Hexœstrol on the Pouch and Scrotum of Trichosurus Vulpecula", *Journal and Proceedings of the Royal Society of New South Wales*, Volume LXXV, 1941, page 21.

(7) A. Bolliger: "Functional Relations between Scrotum and Pouch and the Experimental Production of a Pouch-like Structure in the Male of Trichosurus Vulpecula", *Journal and Proceedings of the Royal Society of New South Wales*, Volume LXXVI, 1943, page 283.

(8) A. Bolliger and A. Carrodus: "The Effect of Testosterone Propionate on Pouch, Scrotum, Clitoris and Penis of Trichosurus Vulpecula", THE MEDICAL JOURNAL OF AUSTRALIA, October 19, 1940, page 368.

[1] Since this paper was submitted for publication, complete transformation of the scrotum into a pouch has been observed in a second specimen of *Trichosurus vulpecula*. In this instance the testes were removed at the same time, and a "symmetrical" pouch resulted.

Reports of Cases.

REPORT OF TWO CASES OF CONGENITAL CYSTIC DILATATION OF THE COMMON BILE DUCT.

By ELIZABETH K. TURNER,
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THE condition of congenital cystic dilatation of the common bile duct has been discussed infrequently in medical literature, although Gross[1] has reviewed 52 cases observed in childhood, and Blocker, Williams and Williams[2] have contributed an analysis of 130 cases in all age groups. The condition is characterized by a localized dilatation in the extrahepatic biliary system, without obvious mechanical obstruction.

It has been considered desirable to place on record two cases which have come under observation at the Children's Hospital, Melbourne, during the last five years. Operation was undertaken for both children, and in one case the surgical intervention was attended by success. The clinical histories are presented in table form (Table I), in order to facilitate comparison and contrast.

Case I.

The patient had a stormy convalescence. Approximately 15 ounces of bile drained daily, and she was given bile orally. Two years after her discharge from hospital she was readmitted with abdominal colic and vomiting. She was in good nutritional state, and the biliary fistula had completely closed. At the time of her readmission to hospital, her temperature was 99° F. It is probable that this attack was referable to mild cholangitis; but in the five years which have elapsed since her discharge she has had no recurrence.

Pathological Examination.

The anatomical relationships of the choledochal cyst were not accurately determined at operation, but post-operatively lipiodol was injected into the fistulous track communicating with the cyst, and an X-ray photograph was taken. This showed a saccular dilatation present in the region of the gall-bladder. The interpretation of the remaining shadows was in doubt; but it was suggested that they represented the cystic duct opening into remains of the cyst found at operation. Furthermore, bile from the cyst contained diastatic and tryptic ferments, suggesting intimate relationship with the pancreas; in all probability the ducts opened directly into the cyst.

Examination of sections of the cyst wall removed at operation revealed mucous membrane with low columnar epithelium and circular and longitudinal muscle layers consistent with the structure of the common bile duct. There were some mild inflammatory changes.

A few Gram-positive cocci were observed in the bile, but the attempt to cultivate microorganisms was unsuccessful.

Case II.

Post-Mortem Examination.

A large, thick-walled cyst was found adherent to the pancreas. This cyst communicated above with the gall-bladder via a dilated cystic duct. The duodenum was opened and a large probe was passed from below through the ampulla of Vater into the greatly distended common bile duct. There appeared to be no stenosis at the duodenal extremity of the common bile duct, no difficulty being experienced in the passage of the probe.

The dilatation of ducts which brought about the condition of a large bile-containing cyst, as it appeared at operation, was not limited to the common bile duct. The hepatic duct was also involved, and participated to such an extent that the cystic duct opened apparently into the large sac.

It was notable that the dilatation was limited to the extrahepatic biliary system; furthermore, the hepatic tissue was not bile-stained, was smooth and showed no evidence of granularity or cirrhosis as is invariably its condition in congenital obliteration or stenosis of the bile ducts.

There was no demonstrable obstruction such as might have resulted from anomalous direction or angulation of the common bile duct, valve formation, stenosis or abnormality of the ampulla of Vater.

TABLE I.

Case.	Duration of Symptoms.	Type of Symptoms.	Physical Signs.	Treatment.	Result.
I. (J.C., female patient, aged four years.)	Chronic, nil. Acute, four days.	Pain—intermittent, severe, upper abdominal colic every half an hour or so. Vomiting: vomited two or three times, with pain; no abnormality detected in the vomitus. Bowels: diarrhœa, four days.	Temperature, 102° F. Abdominal tumour: tender, mobile, firm, rounded mass in right upper quadrant, approximately three inches in diameter. No jaundice. Preoperative diagnosis, probable appendiceal abscess. Urine, no abnormality, no bile. Fæces, brown, watery, no blood.	First operation: (i) External drainage of choledochal cyst. (ii) External drainage of gall-bladder. Glucose and saline solution given intravenously after operation. Second operation, six and a half months later: (i) Excision of choledochal cyst. (ii) Closure of fistula from gall-bladder.	Discharged home, well, after 229 days in hospital.
II. (E.R., male patient, aged three years and nine months.)	Chronic, intermittent; "sore tummy" since he could talk. Acute, sixty hours.	Pain: intermittent, severe, upper abdominal colic every fifteen minutes. Vomiting: seven hours' history, obstructive type; vomitus brownish. Bowels: not open for two days; normal result from enema.	Temperature, 97° F. (shock). Abdominal tumour: tender, oblong, solid mass in right upper quadrant extending to left. Mobile. No jaundice. Pre-operative diagnosis, intussusception. Urine: no abnormality, no bile. Fæces: not acholic, normal.	External drainage of choledochal cyst by marsupialization. Forty ounces of bile removed from cyst. Intestinal obstruction relieved. Post-operative serum transfusion.	Death twenty-four hours later.

Discussion.

In both cases it is interesting to note that the diagnosis was not made pre-operatively. This was no doubt due to (*a*) the relative rarity of the condition, (*b*) the lack of distinctive clinical features; the choledochal cyst triad of abdominal pain, abdominal tumour and jaundice mentioned in the literature was not fulfilled in either of these cases, because of the absence of icterus.

Both children came to operation with symptoms simulating other acute abdominal conditions; in Case II the clinical picture strongly suggested an acute intussusception of the bowel, and there was indeed an intestinal obstruction due to pressure from an enormously dilated choledochal cyst. In both cases the symptoms which necessitated operation were obstructive in type, and in both a dilated, tense gall-bladder was found at operation. This is contrary to the findings in the majority of reported cases, in which the choledochal cyst represented a localized dilatation involving the common bile duct without enlargement of the gall-bladder.

With regard to the possibility of diagnosis prior to the onset of the acute symptoms, it is interesting to note that in Case I there had been no previous symptoms referable to the abdomen, and the little boy, E.R. (Case II), who had complained intermittently of a "sore tummy" since he could talk, had been examined on three former occasions whilst he was a medical in-patient suffering from pneumonia and tonsillitis, and no abdominal abnormality had been detected.

Conjecture only can be offered in regard to the ætiology of this condition because of the small number of cases under review; but it is of interest that in Case I, at operation, a probe was passed into the gall-bladder and thence down the duct to the duodenum. It met with no obstruction of any kind, and in Case II no anatomical obstruction could be demonstrated *post mortem*. It would seem, therefore, that in these cases mechanical obstruction seems to bear no relation to the formation of a dilatation of the common bile duct, and that the theory that the cyst represents a developmental anomaly which is present before birth, and is primarily due to weakness of the wall of the common bile duct, permitting dilatation under normal intraductal pressure, cannot be refuted by the cases under discussion. The supporters of this hypothesis compare cases of congenital hydronephrosis and hydroureter, in which no mechanical obstruction can be demonstrated. A further hypothesis advanced is that of an abortive diverticulum in the wall of the common duct. Such diverticula are not uncommon in the pancreas. It has also been suggested that the dilatation is in the nature of an achalasia or muscular incoordination of Oddi's sphincter causing intermittent obstruction; this view could be maintained in both of the above cases.

It is feasible that some degree of obstruction may have been caused by œdema consequent upon recurrent cholangitis. In Case I inflammatory changes were demonstrated by histological examination of the cyst wall, and in Case II the cyst wall was thick and fibrous and the mucosal layer poorly represented, possibly because of its destruction and replacement during repeated inflammatory attacks.

Summary.

Two cases of congenital idiopathic dilatation of the common bile duct are described; both occurred in young children, and in both the appearances suggested acute abdominal "emergencies".

In both cases, external drainage of the choledochal cyst was undertaken as an urgent surgical indication, in one case with success. Notes are included of several of the more popular hypotheses advanced with regard to the ætiology of this rare condition.

Acknowledgements.

I am indebted to Dr. H. Douglas Stephens for permission to publish these cases, and also to Dr. Reginald Webster for permission to publish the pathological reports.

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(2) T. G. Blocker, junior, H. Williams and J. E. Williams: "Traumatic Rupture of a Congenital Cyst of the Choledochus", *Archives of Surgery*, Volume XXXIV, 1937, page 645.

TWO FATAL SALMONELLA INFECTIONS DUE TO SALMONELLA ADELAIDE AND SALMONELLA TYPHI-MURIUM.

By J. B. CLELAND, M.D.,

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RECENTLY Miss Nancy Atkinson[1] described as *Salmonella adelaide* a new species of the genus isolated from a patient who later died in the Royal Adelaide Hospital. Clinical and post-mortem details of this case have been abstracted and are now submitted to make the account of this organism as complete as possible. The opportunity is also taken of recording the data available in a fatal case of infection by *Salmonella typhi-murium* which occurred at the Royal Adelaide Hospital two months later, the identification being again made by the bacteriological staff of the Institute of Medical and Veterinary Science, Adelaide. The post-mortem examinations were carried out by myself.

Case I: Fatal Infection by Salmonella Adelaide.

D.R., a male patient, aged forty-nine years, was first admitted to the Royal Adelaide Hospital under the care of Dr. A. R. Southwood on October 3, 1940. He was an ex-cook from the garrison. Eight years previously he had been operated on for gastric ulcer. Six months earlier he had begun to suffer from abdominal pain and vomiting about

half an hour after meals. After some freedom from these, they had returned a fortnight prior to his admission to hospital. The bowels were opened regularly with paraffin. The patient was found to have hypochlorhydria. Fluoroscopic examination with a barium bolus revealed a juxtapyloric ulcer. He was discharged from hospital on October 26.

He was readmitted to hospital on the morning of February 20, 1941, with the history that he had not felt well after supper the night before, and had gone to bed shivering, had had little sleep, and had vomited several times. He had gone to work next day with a frontal headache, his head throbbing like "a ball of fire". While working on a gardening job he apparently fell down, and did not remember being brought into hospital. On his admission to hospital, his temperature was 100·2° F. and his pulse rate was 96 per minute; his chin was twitching and he was pursing his lips; he did not respond to the spoken word, though later was able to speak and recognized his surroundings. He said that his neck was sore and stiff. Some muscular guarding was present on the right side of his abdomen. He vomited several times and had one diarrhœic motion in the afternoon. His temperature reached 102·8° F. The tentative diagnosis was heat-stroke or typhoid fever. Later in the afternoon he was semiconscious, rambling and slightly delirious. During the night he had four yellowish, watery motions. On February 21 he looked drowsy, but was rational, and had slight frontal headache; his eyes were rather sunken; his temperature was about 102° F., dropping in the afternoon to between 99·4° and 100° F.; his tongue was furred; some muscular guarding and fullness were present on the right side opposite the umbilicus. By the late afternoon he had had about a dozen motions in thirty hours and had vomited several times. No abnormality was detected in the chest.

On February 22 he had severe hiccup, and the abdomen was rather "doughy". Next day he had a coughing and vomiting attack, and apparently an attack of abdominal cramp. Crepitations were present at the bases of both lungs. On February 24 he had stertorous hiccup and Cheyne-Stokes respiration. The blood urea nitrogen content was 65 milligrammes *per centum*. On February 25 he was obviously sinking; he was comatose, had stertorus breathing and passed only a few ounces of urine per day. A Salmonella had been found in the stools. Next day he was very ill; his breathing was gasping, and he was sunken and emaciated; there was no albumin in the urine. He died on the afternoon of February 27. The temperature was 100° F. on the morning of February 22; it became subnormal in the afternoon, and remained so, mostly between 97° and 95° F., till a terminal rise to 100° F. just before death. On February 24 the leucocytes numbered 7,300 per cubic millimetre, 79% being polymorphonuclear cells, 15% lymphocytes and 6% monocytes.

Autopsy.

In the small intestine Peyer's patches and the solitary follicles were slightly swollen and reddish and looked eroded; these changes increased in intensity towards the caecum. In places it looked as though there were slight ulcers undergoing healing. The solitary follicles of the colon were not enlarged, but there were occasional small patches of congestion. The spleen weighed six ounces (170 grammes) and was dark in colour and congested; the liver was rather pale, probably from cloudy swelling, and weighed 56·5 ounces (1,600 grammes). The kidneys were deeply congested, as were the bronchi and the lower lobes of both lungs. There were no other lesions of importance.

On microscopic examination no areas of focal necrosis were found in the liver. Cloudy swelling of the kidneys and a little bronchopneumonia were noted.

Salmonella adelaide was isolated from the liver and spleen *post mortem*.

Case II: Fatal Infection by Salmonella Typhi-Murium.

R.G., a male patient, aged twenty-one years, was admitted to the Royal Adelaide Hospital under the care of Dr. K. S. Hetzel on the afternoon of April 22, 1941. Five days previously he had returned home from work, and had lain down on his bed, vomited, and had a desire to pass a motion. Since then he had been vomiting, had suffered from diarrhœa, and had become dehydrated and very thirsty. He had slight pain in the pit of his stomach. He said that the day before his admission to hospital his father had had a similar attack, but was better. On examination, no important abnormality was detected. His temperature was 96·6° F. and his pulse rate 116 per minute, and his respirations numbered 24 per minute. He died nineteen hours after admission to hospital.

Autopsy.

The small intestines were distended and rosy in colour externally and internally, though the congestion was only slight; the Peyer's patches were only slightly prominent, but the solitary follicles in the lower part of the ileum were prominent, less so in the colon. The mucosa of the stomach was rather rosy. The spleen seemed of normal size and texture, weighing seven ounces (198 grammes). The liver was dripping with blood and weighed 56 ounces (1,585 grammes); the kidneys were a little swollen (the left weighed six ounces or 170 grammes and the right 5·5 ounces or 160 grammes). The bronchi were deeply congested. On microscopic examination no areas of focal necrosis were found in the liver.

Salmonella typhi-murium was isolated from the liver and intestine *post mortem*.

Reference.

(1) N. Atkinson: "A New Salmonella Type: Salmonella Adelaide", *The Australian Journal of Experimental Biology and Medical Science*, Volume XXI, Part 3, 1943, page 171; "The Occurrence of Salmonella Types in Australia, *ibidem*, Volume XXII, Part 2, 1944, page 51.

Reviews.

CLINICAL BIOCHEMISTRY.

MUCH of the material in the fourth edition of Dr. Maxwell's "Clinical Biochemistry" has been removed to make way for new methods, and the whole has been revised.[1] As before, it is still primarily a practical manual written for the students attending Dr. Maxwell's classes, and it attempts to indicate the application of biochemistry to problems met in clinical practice. On this account, it will also appeal to practitioners. When we consider this volume, and recall the recognized source books in this field, such as those of Peters and Van Slyke, Hawk and Bergheim, Harrison *et cetera*, it is clear that many matters would compete for inclusion. An attempt has been made to overcome this disadvantage by the inclusion of lists of selected original articles and reviews on both the included and omitted topics.

The sections treated are as follows: renal efficiency, urinary sediments, chemical and spectroscopic examination of hæmoglobin and its derivatives, drugs in urine, glycosuria, pancreatic efficiency, acidosis, hepatic efficiency, blood analysis, test meals and gastric function, examination of fæces, cerebro-spinal fluid, urinary and biliary calculi and basal metabolism. In each case a summary of relevant information is given covering the principle and application of the method, and this is followed by a discussion of the significance of the results likely to be obtained. A good feature is the clear reference to possible fallacies in tests in which these are likely to occur. In a number of instances, alternative methods are given—a point which increases the usefulness of the book. In some instances, simple modified methods are given so that work may be carried out more quickly or with less apparatus. Such methods will assist and encourage enthusiastic and enterprising physicians, and it has been suggested that the same methods will find application in the cognate subject of veterinary medicine as it develops, particularly in field studies. This is all to the good, but only if such modifications have been investigated very extensively. We wonder whether some of the work on renal function included in this book could not have waited for the next edition, and in the interim have been submitted to further investigation. This early publication of such material in book form may stimulate others to use it and form their own opinion.

The book is easy to use with its large type headings, good index and detailed table of contents. However, in the lists of references we notice that in some instances the date of publication has been omitted.

Finally, we may say that medical practitioners will find in this book much general useful information summarized and tabulated conveniently. Laboratory personnel will find much of interest in it, but should read it with the previously mentioned source books at hand.

[1] "Clinical Biochemistry", by Ivan Maxwell, M.D., B.S., M.Sc., B.Agr.Sc., F.A.C.I., F.R.A.C.P.; Fifth Edition; 1944. Melbourne: W. Ramsay (Surgical) Proprietary Limited. 8¼" × 5¼", pp. 394, with illustrations, three pages of which are in colour. Price: 27s. 6d.

The Medical Journal of Australia

SATURDAY, JULY 15, 1944.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

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THE MAY MEETING OF THE FEDERAL COUNCIL AND ITS SEQUEL.

IT has been said of women that they are all young, but that some are older than others. So when each succeeding meeting of the Federal Council is described as important, readers may agree, but they should add that some are more important than others. During the last few years the attention of the Federal Council, and indeed of the whole profession, has been directed to the future of medical practice—to the changes that must inevitably follow the growing complexity of medical science and attempts to make it available without discrimination for the prevention and cure of disease in every section of the community. With each new development, with each fresh indication of the ultimate aims and intentions of the Federal Government, the meetings of the Federal Council considering them may be said to have gained in importance. The meeting reported in this issue was unusual in that it was called because three of the Branches of the Association asked that a special meeting should be held. Of all the matters dealt with at the meeting—and they were many—attention must be drawn to the interrelated matters that prompted the Branches to make their request.

The first matter that calls for mention is the transfer of the control of medical coordination and equipment from the Department of Defence to the Department of Health. The account of the discussion that appears in our report of the meeting will give readers most of the facts. Perhaps, however, the part taken by the Central Medical Coordination Committee itself is not made clear. For this it is necessary to turn to a statement received from the President of the Federal Council just before the May meeting. It appears that the Central Medical Coordination Committee was advised of the impending change just before the departure of the Minister for Defence for England. The reason given for the decision was that the Minister for Defence had found it necessary to arrange for many of the powers conferred upon him under National Security Regulations to be exercised by other ministers and that similarly it had become necessary for the activities of the Secretariat of the Department of Defence to be confined to matters of defence policy, higher defence administration and War Cabinet and Advisory War Council business. The Minister for Defence, it was stated, felt that it would be more appropriate and satisfactory if the responsibility for the administration of Medical Coordination and Equipment Regulations was transferred to the Minister for Health, who had for some time been acting for and on his behalf in regard to these regulations. On receipt of this advice a special meeting of the Central Medical Coordination Committee was convened and representations were made to the Minister for Defence for reconsideration of the decision. In these representations it was pointed out that the medical profession had accepted without demur and as a war measure a form of conscription which had not been imposed on any other section of the community. As readers are well aware, all legally qualified medical practitioners up to the age of sixty years had been rendered liable to serve either in the Citizen Forces or in the Emergency Civil Medical Practitioner Service, irrespective of the age group to which they belonged. It was understood that the regulations imposing these conditions on medical practitioners were to continue in force only for the duration of the war and six months afterwards. The representatives of the British Medical Association on the Central Medical Coordination Committee (Sir Henry Newland and Dr. J. Newman Morris) were apprehensive that with the transfer of administration of the regulations to the Minister for Health, the regimentation of the profession might not cease with the cessation of hostilities. When he replied to the Central Medical Coordination Committee, the Acting Minister for Defence stated that he was unable to vary the decision made by the Minister for Defence. He, however, gave an assurance that the medical coordination committees would continue to function as before and that there would be no change in the existing procedure for carrying on the business of the committees. The regulations would not be amended, except to provide for the change in the Minister administering them. When it had considered this reply and the assurance given, the Central Medical Coordination Committee, while regretting that the *status quo* had not been maintained, decided to offer its fullest cooperation and to do everything in its power to carry on with the task entrusted to it. The Federal Council's representatives, having had a share in the making of this decision, had, before the Council met in May, practically promised the cooperation of the medical profession. What the Federal Council really had to do was to decide whether it would endorse the action of its representatives. This it has done, and it has also voiced its "strongest possible protest" against the departmental transfer. There can be few, if any, who are not strongly opposed to this transfer, and the great majority of practitioners will agree with Dr. H. C. Colville in his deprecation of anything that may be described as direct action. It is also safe to conclude that every medical practitioner would prefer the medical administration of a health department to that of a lay authority like the manpower department. The Federal Council has taken what in the circumstances will be regarded as a dignified course of action, and one which will preserve for the profession the valuable help that the medical coordination committees have given and are still giving to it, and which, we trust, will maintain the efficiency of the profession in the national war effort.

The *Pharmaceutical Benefits Act* has been discussed on previous occasions in this journal, and in the issue of April 1, 1944, a short *précis* of the debate in the Senate during the passage of the bill was published. From the

account of the meeting it is clear that the opposition to the measure among doctors is very strong. The most succinct statement came from the Victorian Branch and has been included in the discussion. The point on which we laid stress in a previous discussion is the one that we should like to emphasize once more, particularly as it has been denied by supporters of the measure. Clearly every prescription required by every patient who claims the benefits of the new act will not be found in the formulary or pharmacopœia on which the functioning of the act will depend. It has been suggested that 85% or perhaps 90% of prescriptions will be dispensable in terms of the formulary. This means that, if the practitioner does his duty and orders for the patient what he needs, 10% or 15% of prescriptions will have to be paid for by the patient. Since all patients will not be able to meet this cost, the act will discriminate between two groups or classes of people, those who have enough money for their needs and those who have not. The Commonwealth Government in regard to this measure may therefore be said to perpetuate the disability of poorer sections of the community which it has set out to remove. This cannot be gainsaid, however much protagonists may wriggle, words be twisted and intentions declared. The Federal Council, actuated by the President, chose to put the whole discussion on the high level of the freedom of the individual—the freedom of the doctor to prescribe what is necessary, and the freedom of the patient to receive what he needs. "On this principle the Federal Council", it writes to the Minister, "can make no compromise." It remains to be seen whether the Minister will pay any heed to the views of the Federal Council. The Minister has declared in the Senate that the Government does not claim that this legislation will improve the health of the community, and several of his supporters in the same debate made it clear that the measure was part of the Government's general scheme for the socialization of medicine. In these circumstances no alteration or even watering down of the provisions of the act may be expected.

Another matter of importance that was dealt with, was the rehabilitation of medical officers of the armed services. This, as mentioned in the discussion, is a complex subject and includes post-graduate education and training, as well as the placement of service medical officers in private or departmental or institutional practice. If members of the Association have followed discussions in this journal during the past few months, they will be familiar with some of the aspects of these problems. With post-graduate training and education we do not intend to deal at present. Placement of medical officers will depend to some extent on the state of medical practice when demobilization begins in real earnest. In present circumstances it must be presumed that conditions will be much as they are at present. If it should be agreed, as the Federal Council suggests, that the Branches of the British Medical Association are to be largely responsible for the placement of service medical officers in civilian practice, a great deal of organization will have to be undertaken and medical practitioners in every part of the Commonwealth will have to show their willingness to cooperate. The medical officers of the armed forces have deserved well of their civilian brethren and it is difficult to imagine that any of the latter will deny their duty to the former. If the Branches of the Association are anxious to undertake this work—and it will be no small undertaking—a start should be made at once in the laying down of plans and in the collection of detailed information about every centre and every type of practice in regard to present conditions and the likely needs of the future.

It now becomes necessary to record another event that has taken place since the May meeting of the Federal Council. At the request of the Minister for Health an informal conference was held at Canberra during the last days of June. Those taking part comprised the members of the Federal Council, members of the National Health and Medical Research Council, representatives of the Royal Australasian College of Physicians and of the Royal Australasian College of Surgeons, together with the Minister for Health and the Commonwealth Treasurer. A frank discussion was held and the upshot was that the representatives of the Federal Council agreed to the appointment of a committee comprising one member of each of the Branches of the British Medical Association in Australia, with the General Secretary of the Federal Council, to confer with the Government in order to explore the possibility of devising a service which would satisfy the requirements of the Government and also be acceptable to the profession. And there the matter stands at present.

Though other aspects of the discussions at the recent meeting might be mentioned, we must be content with urging members of the Association to read the report of the meeting. The report may seem to be a lengthy document, but it is only a summary of the proceedings and is published so that every member may be familiar with what is taking place and with the views of those belonging to Branches other than his own. In conclusion, satisfaction must be expressed that something has been done to recompense members of the Federal Council for the dislocation of their practices which must necessarily accompany their absence on the business of the profession. Too much is taken for granted by most members of the Branches when they think of Federal Council matters. The new arrangement cannot possibly make good the loss of practice that must inevitably be suffered by Federal councillors, but the fact that the Branches have sanctioned it is evidence that they appreciate the public spirited and self-sacrificing efforts of their representatives.

Current Comment.

VITAMIN A AND BONE GROWTH.

THE Croonian Lecture delivered yearly before the Royal Society of London is always looked upon as a major event in scientific exposition. That given on July 15, 1943, has been published in the *Proceedings of the Royal Society* with the date March 1, 1944. The lecturer was Sir Edward Mellanby, and his subject nutrition in relation to bone growth and the nervous system. In this address a fascinating story of research on the action of vitamin *A* was presented. In the early days of vitamin investigation there was considerable confusion between vitamin *A* and vitamin *D*, the two leading fat-soluble factors, but the position became clarified and vitamin *D* was properly relegated to the domain of rickets. Considerable uncertainty, however, still clung to the function of vitamin *A* and the effects of deficiency. Eye troubles were early noted, but more important than these were various manifestations of incoordination. Detailed research revealed some nerve degenerations, and here the curious problem was presented that motor cranial nerves in general escaped whilst sensory nerves were involved. The same

differentiation was noted with spinal nerves, namely, the relative immunity of the anterior or ventral and the susceptibility of the posterior or dorsal nerves. The unravelling of this puzzle cannot fail to be regarded as a very pretty piece of scientific insight. Growth has always proffered many difficulties in the correlation of the diverse tissues and organs involved; for instance, in a boy or girl the epiphyseal activity in each femur may increase the length of the thigh by some inches, and yet muscles, arteries, veins, and the sciatic nerve must by processes still undiscovered extend in length *pari passu*. One such regulated activity has always excited wonder, namely, the increase in diameter of a hollow bone; as the outer wall expands the inner wall is eaten by osteoclasts so that a perfect adjustment of the size of the cavity to the increasing dimension of the bone as a whole is maintained. Now it is in this delicate adaptation that vitamin *A* comes in. The function of vitamin *D* is to control the deposition of mineral matter, chiefly calcium phosphate, that is, the reinforcement of the connective tissue matrix with its strange assemblage of interlocking Haversian systems each with its concentric hollow cylinders; but vitamin *A* regulates the actual growth. When there is a deficiency of vitamin *A* the perfect harmony between the osteoblasts and the osteoclasts is deranged, and the usual result is that whilst the outer wall expands, the retreat of the inner wall comes to a halt; indeed there is evidence that this inner wall may encroach on the lumen and materially reduce its calibre. As a consequence of this, many bony canals transmitting nerves or bony recesses housing ganglia develop a constriction which will lead to nerve degeneration. As examples of such developments resulting from vitamin *A* deficiency may be mentioned the narrowing of the apertures in the cribriform plate causing deterioration of the sense of smell, nipping of the optic nerves with visual loss, pressure of hypertrophied bone on the Gasserian ganglion inducing sensory paralysis and, perhaps most marked of all, compression of the cochlear branch of the eighth cranial nerve. The dorsal roots of the spinal nerves are, as has been stated, involved in the same pincer action. The skull also manifests a similar maladjustment. To quote Sir Edward Mellanby's graphic simile: "The central nervous system is a citadel, and as it grows the protecting walls are normally moved farther out. As the bones grow outward, their inner surface is removed to provide more space. Now if the director of building operations (vitamin *A*) disappears, it might then be expected that the working builders and demolition squad (osteoblasts and osteoclasts) would either cease to work or work in a completely disorderly way, but this does not happen in the bony ramparts. It is rather as if the place of vitamin *A* as a wise director of operations were taken over by that worst kind of director—the energetic man with no wisdom, whom we all know so well nowadays—who says: 'I am going to show you how things should be done; now you will see something really happen.' His directions are: 'You must work harder than ever, but in a different way. You builders (osteoblasts) must lay down bricks wherever there is a foundation (periosteum). You demolishers (osteoclasts) working nearest the citadel must leave that position and continue your labours elsewhere.'" A new and most vivid light has been thrown by these researches of Sir Edward Mellanby on the problem of bone growth which we now see is subject to chemical regulation, and the agent concerned is either vitamin *A* or an immediate derivative.

RAYNAUD'S DISEASE.

THERE seems to be a definite if gradual cooling of enthusiasm for operations on the sympathetic nervous system in the treatment of vascular disorders. It is admitted that some of the original procedures were not anatomically or physiologically ideal, but a fair estimate is now possible of the results likely to be obtained. There can be no question of the vast amount of interest aroused in the subject, and the greatness of the contributions of a surgeon like the late N. D. Royle lies not so much in the value or even validity of any procedure introduced by him as in the intense and critical study of the subject stimulated by his eager ever-questing mind.

Raynaud's disease and all the varieties of peripheral disturbances of circulation which do not depend upon a clear pathology are still obscure in their ultimate causation. Isidor Mufson, in a documented study of Raynaud's disease, points out that two distinct views have been held of its mechanism, one that there is a fault in the minute vessels of the digits, and the other that angiospasm is due to abnormal sympathetic stimulation.[1] He attempts to go back further still and postulates that there is an emotional force at work which initiates these abnormal impulses, to whose effect is added the local spasm of skin vessels due to exposure to cold. Injury to vessels may thus result and thrombi may even form, causing a true local "fault". In other words, he places Raynaud's disease in the growing list of psychosomatic disorders. Mufson considers that one form of acute emotional distress, namely, fear, is capable of acting as a vasoconstrictor influence, just as it undoubtedly can in other parts of the body. Anoxia of tissues follows closure of vessels, and the skin appears livid or white according as there is much blood trapped in the venules or not. Removal of the stimulus causes hyperæmia, with distension of vessels and heat of the tissues. He states that there is in this disease great exaggeration of the normal vasoconstrictor response of minute vessels not only to cold, but also to fear, and thinks that it is only a question of time and repeated trauma before the minute vascular channels will show evidence of material damage. It would appear that this author attributes the peculiar reactivity of this part of the vasomotor mechanism to an inherent instability, and regards the continued malign influence of emotional disturbance as a most significant ætiological factor. It may be remarked here that there is evidence that damage to the central nervous system may include the vasomotor controlling mechanism. A good example of this is in the sequels of encephalitis in which vascular functional disturbances are not infrequent. These may be affections of any appropriate part of the sympathetic chain; they may be sometimes hypothalamic in location, or, if we remember one of Hughlings Jackson's aphorisms about "re-representations of function" in the nervous system, at an even higher level. This at least gives some colour to Mufson's concept.

He quotes a number of case histories in which there seemed to be a direct causal relation between mental stress of economic or domestic order. Study of these certainly appears to show that careful investigation of the patients' background and attempts made to give help and advice directed towards the lessening of emotional stress have been useful in treatment. Certainly all the usual medical measures were also employed, including physical therapy, iontophoresis with histamine, and papaverine hydrochloride. It might be said that the very thoroughness and sympathy with which a physician handles the patient will of themselves encourage the faithful prosecution of treatment. But probably there is truth in the concept that where a disease is known to be dependent upon a neural mechanism, no part of the nervous system can be ignored in attempting to understand it fully. Mufson, of course, admits that the most promising group of cases is that in the first stage in which spasm alone has to be countered. In the next stage some damage has been sustained, and the way is longer and harder, while in the final stage secondary changes in the tissues have occurred which are irreversible. But he claims that merely to use physical methods designed to increase collateral circulation is not enough, and that it is also necessary to attend to the hygiene of the mind and to those social and economic factors in life that are relevant. Perhaps this talk of psychosomatic disease is merely a compensation for the loss of Greek from the school curriculum, for the good doctor has always been a social worker. But there are things which we should not ignore even if we cannot measure them by approved methods; and it is well to recognize and remember the "*animula, blandula, vagula, hospes comesque*", call it what we will.

[1] *Annals of Internal Medicine*, February, 1944.

Abstracts from Medical Literature.

BACTERIOLOGY AND IMMUNOLOGY.

Vector of Encephalitis.

RUSSELL J. BLATTNER AND FLORENCE M. HEYS (*The Journal of Experimental Medicine*, April, 1944) describe fully their experimental transmission of Saint Louis encephalitis, Hubbard strain, to white Swiss mice by the American dog tick, *Dermacentor variabilis* Say. The tick was infected by feeding on infected animals, and it was found that once infected, it could transmit the virus by bite to normal susceptible animals, and that the female could, through the egg, transmit to her offspring infection which persisted through all stages of metamorphosis to the adult. Eggs laid by an infected adult could be stored for periods up to ten months and the hatched larvæ would still be infective. This is the first verified description of transmission of Saint Louis encephalitis to laboratory animals by an arthropod blood-sucking vector.

Penicillin in Murine Typhus.

VICENTE MORAGUES, HENRY PINKERTON AND DONALD GRIEFF (*The Journal of Experimental Medicine*, April, 1944) have studied the therapeutic effectiveness of penicillin in experimental murine typhus infection in brown mice of the dba strain. They used the intraperitoneal route of infection in groups of twelve mice, six controls and six test animals. The dosage of penicillin was from 620 to 1,100 units per day, given in five to seven doses, either intraperitoneally or subcutaneously; treatment was begun at varying intervals after inoculation with rickettsiæ. In groups in which the time interval was short or the dose was small, prolongation of incubation period and survival time was noted. In other series all test animals survived after a mild illness. All control animals died. The authors point out that relatively large doses of penicillin were effective in mice to produce great reduction of mortality from the rickettsial infection. They established by autopsy and cultural examination the absence of secondary bacterial infection. They conclude that the effect was solely that of penicillin on the rickettsiæ. No conclusions applicable to human disease are drawn.

Complement in the Serum of Healthy Persons.

B. TRAUB (*The Journal of Pathology and Bacteriology*, October, 1943) has studied the complement activity of serum from healthy persons, mothers and newborn infants. A sensitive method was employed, in which standard amounts of hæmoglobin contained in red cells, the temperature of reaction and the reading of tests were accurately controlled; 50% hæmolysis of the test dose of hæmoglobin was the end-point, and it was estimated in the colorimeter and expressed as thousandths of a millilitre. One hundred and twenty-seven healthy blood donors were tested, and no significant differences were found between the values obtained from different blood groups or from opposite sexes. The complement activity of mothers' serum was higher, and that of newborn infants was lower than that of the normal group, and no relation was found between the complement values of the serum of mothers and their children. Naturally occurring sheep antihæmolysins did not influence the complement titre.

Antibacterial Substances in Green Plants.

E. M. OSBORN (*The British Journal of Experimental Pathology*, December, 1943) has made extensive studies on the occurrence of antibacterial substances in green plants. He used a diffusion test on an agar plate inoculated with *Staphylococcus aureus* or *Bacterium coli*, the extract being made from all available parts of the plant under investigation—root, stem, leaf and reproductive organs. The result was purely qualitative, and designed to demonstrate the presence or absence of an active substance. Two thousand three hundred plant species from 166 families were tested, and 63 genera were found to contain substances which inhibited one or both organisms. Under the conditions used, two plants showed specific action on *Bacterium coli*. Certain plants of well-known pharmacological action showed no inhibitory power by this method—for example, atropa and belladonna. Drying of the material frequently affects the result of the test, destroying the inhibitory power of the extract obtained.

Chick Embryo Test for Disinfectants.

T. W. GREEN AND J. M. BIRKELAND (*The Journal of Infectious Diseases*, January-February, 1944) describe the use of the developing chick embryo as a method of testing the antibacterial effectiveness of wound disinfectants. They used eleven day embryos, which were inoculated by dropping 0·02 millilitre of a one in ten dilution of an overnight culture of *Staphylococcus aureus* onto the chorio-allantoic membrane. Eighteen hours later 0·2 millilitre of the test dilution of disinfectant was also dropped onto the membrane. This procedure was repeated for each of five days. On the sixth day a sterile cotton swab was stroked over the area, and then used to streak an agar plate. Aqueous solutions of 11 different antiseptics were tested, from phenol to penicillin. Control embryos were treated with saline solution after infection, and some were not treated with saline solution, but were infected with test culture. Of the former, 31 out of 46 remained alive and profusely infected; of the latter, 14 out of 17, all infected, remained alive. Amongst the test substances which produced sterility after six days, penicillin was the best; "Zephiran" and three other kationic detergents were good. Phenol, iodine and "Merthiolate" were not effective. The authors think that this technique is reproducible, and that it is advantageous, in that the test substances are applied to established infections, and therefore the conditions are reasonably comparable to natural conditions of application of antiseptics.

HYGIENE.

Recent Advances in Child Hygiene.

R. R. STRUTHERS (*The Canadian Journal of Public Health*, March, 1944) gives a *résumé* of the present practice in preventive medicine in childhood. Iron, milk, eggs and vitamins, added to the family diet, by improving the health of the expectant mother, improve the health and teeth of her child. It is far less expensive to feed the mother properly than to pay for the repair of the results of poor nutrition in the infant. Antenatal care may yet save us from dental caries. Complete anoxia for forty-five seconds brings about irreversible damage to the brain; respiration in the infant must be restored without delay. Vitamin *K* is advised for routine use in the parturient. Premarital tests are needed for the discovery of latent syphilis. Tests for the Rh factor can then be made, to facilitate blood transfusion. Cœliac disease is best dealt with by a diet rich in protein and by bananas; liver extract and vitamin *B* are helpful and produce a prompt recovery. The emotional stability of the population can be built up by education in the responsibilities of parenthood. Gesell's standards are invaluable. Emotionally unstable children come from emotionally unstable homes, and therefore from emotionally unstable mothers. Parents are always worried; they may be reassured. Adolescence should be controlled by the pædiatrists. Rheumatic fever belongs chiefly to an economic group, neither well-to-do nor destitute; but it is not a disease of private practice, though it is common in hospital and is also a family disease. Lack of protein, iron, calcium and vitamin *A* in the diet favours the disease. Its prevention is a social responsibility. The disease should be notifiable.

Fluorine and Dental Health.

H. TRENDLEY DEAN (*The American Journal of Public Health*, February, 1944) states that in 1938 he noted much less dental caries in school children in areas where dental fluorosis was found than in other children, and later he confirmed this finding in Illinois. Armstrong had shown that the enamel and dentine in sound teeth differed from that in unsound teeth solely in a higher fluorine content. Miller prevented caries in rats with fluorides, and fewer lactobacilli were noted. The teeth of offspring of rats fed with fluorides were likewise resistant to caries. Twenty-one cities were studied in Illinois. In 7,257 selected children, aged from twelve to fourteen years, an inverse relation was shown between the amount of dental caries and the fluoride concentration of the common water supply. The highest caries rate associated with a very low fluoride content in the water was over four times greater than the lowest rate. The amount of fluoride present did not give rise to mottled teeth. Water hardness did not come into question, for a high incidence of dental caries was found to be associated with hard water free from fluorides, and a low incidence of dental caries was found to be associated with soft water having a high fluoride content. Wide differences

in hardness of the water did not noticeably alter the amount of caries. Six hundred and thirty-three children were compared with 1,008 receiving water with an optimum fluoride content; six times as many of the latter were caries free, dental caries was 60% lower, the loss of six-year-old molars was 75% less, and the four upper permanent incisors were 95% less affected by caries.

R. J. FAUST (*ibidem*) states that the problem is to supply water containing one part per million of fluorides, and thus avoid mottled enamel due to an excess of fluorides and prevent the dental decay favoured by fluorine-deficient water. This can now be done at low cost by the addition of sodium fluoride. A water supply containing an excess of fluorides is best changed.

Meningococcus Carrier Studies.

J. J. PHAIR, E. B. SCHOENBACH AND CHARLOTTE M. ROOT (*The American Journal of Public Health*, February, 1944), whilst meningitis was prevalent, studied a medical service unit in an army camp. The unit was stable, and no cases of meningitis had occurred. Exposure to known cases or a past history of meningitis was excluded, as also was recent treatment with sulphonamide drugs. One hundred subjects formed a control group; from another 100 culture material was taken for a week, and one gramme of sulphadiazine was given to each man twice a day for three days. A month later they were released, and 110 new men from the unit were tested with smaller doses. Cultures were taken from all the controls three times a week. Blood levels of the drug were estimated in all instances. In the control group over a period of 68 days 41% of attempts at culture gave positive results. Ninety-one men were carriers at some time or other; about 50% were carriers at one time. The oral use of sulphadiazine for three days reduced the carrier rate to 3% two days later, and to 1% three days later. No drug reactions were observed. It appeared that two grammes of sulphadiazine by mouth sufficed to eliminate the carrier state. Sulphamerazine produced similar results. The value of the sulphonamide drugs for prophylaxis is suggested.

Gonorrhœa Control.

N. A. NELSON (*The American Journal of Public Health*, February, 1944) states that the newer sulphonamides cure not more than 70% of gonococcal infections within two weeks under rigid criteria of cure. A dosage of four grammes per day for five days gives the best results, and the success of such drugs has made the treatment of gonorrhœa a function of the general practitioner. The strains of gonococci resistant to sulphonamides cannot be overlooked. In women, treatment by douche, suppository and topical application mean uncertain hygiene and unsound medicine. Fever therapy is of value, but requires admission to hospital. Penicillin appears to offer a solution of the problem; its administration may follow the initial use of a sulphonamide as soon as cultural tests indicate a resistant strain. Examination of smears may be of little use in the case of the female. A medium is needed for keeping the gonococci alive so that cultural material can be referred to a central laboratory. Any urethritis that occurs after promiscuous sexual activity requires treatment and investigation. If most infections in males could be at once detected and cured, gonorrhœa in most females would soon disappear. However, practically nothing is yet known of the true prevalence of gonococcal infection in the community.

"Imported" Malaria.

O. R. MCCOY (*The American Journal of Public Health*, January, 1944) states that during 1943, 65% of the malaria in the army was acquired abroad, and the number of infected men returning from overseas is likely to be greater next year and especially at the end of the war. In some areas of the United States now free from malaria, *Anopheles quadrimaculatus* is found. New endemic foci have to be thought of and new malarial strains also. The chances, however, are not considered to be great. Concentration on the mosquito vector and prompt action can and do control any outbreaks. Actually malaria rates in the south have in recent years been the lowest on record. Over 90% of relapses are of the *Plasmodium vivax* type; this parasite in the past has not given rise to serious epidemics like *Plasmodium falciparum*. Prompt diagnosis is needed, and practising physicians need to receive instruction in the diagnosis and treatment of malaria, since the main danger of spread from soldiers occurs after they return home.

The Effect of Riboflavin on Corneal Vascularization and Symptoms of Eye Fatigue.

F. F. TISDALL, J. F. MCCREARY AND H. PEARCE (*The Canadian Medical Association Journal*, July, 1943) found that in a relatively small group of apparently healthy persons exposed to considerable glare in their daily life, the prevalence of vascularization of the cornea and of symptoms which have been accredited to riboflavin lack was surprisingly high. The apparatus used in obtaining photographs of quadrants of the eyes was specially designed and constructed. Photoflood or photoflash sources of light were found to cause considerable discomfort to the patient, so the xenon-krypton gas arc ("Kodatron") was used. The extreme intensity of this light source is equivalent to 2,000,000 watts, but the flash duration is only one thirty-thousandth of a second. The patient is aware of a slight flash, but suffers no discomfort. The administration of large amounts of riboflavin daily (9·9 milligrammes per day) for a period of two months caused a progressive decrease in vascularity in approximately 70% of the treated group, and a clearing of or improvement in symptoms in 95% of those affected, whilst in another group treated for one month only there was a much smaller decrease in vascularity, but almost as great a change in the symptoms.

Yellow Fever and Typhus: Their Possible Introduction into the United States.

W. A. SAWYER (*The American Journal of Public Health*, January, 1944) states that reliance is placed solely on vaccination in the fight against epidemic and endemic jungle yellow fever. It can also be applied to people in a zone between an infected and an uninfected region and at critical traffic points. The vaccine in use immunizes most persons for at least four years. Formerly a small amount of human serum added in manufacture to help preserve the virus gave rise to hepatitis resembling catarrhal jaundice with certain lots of vaccine. Chick embryo juice is now used instead. The sole reaction noted since then has been occasional malaise and a rise of temperature on the sixth or seventh day. The vaccine is used officially only and has not been made available generally. It must be kept cold and used strictly according to the directions. As a second line of defence, quarantine action is still used in the control of air travel, the incubation period of six days being used as a guide, while as a third line of defence the control of *Aëdes ægypti* is still needed for cities or other places where the mosquito exists, and where such control can be completely effective. Rickettsiæ, flea-borne (murine typhus) or tick-borne (Rocky Mountain fever), or even mite-borne (scrub typhus), seem unlikely to become important, though the last-mentioned type requires further study. Mexican *émigrés* used as railway workers have at intervals since 1916 brought about louse-borne typhus in the west. Davis and his co-workers have obtained excellent results in ridding an entire town of lice by certain insecticidal powders used in the clothes and a lotion for the hair.

MEDICINE.

The Water-Pitressin Test in Epilepsy.

H. G. GARLAND *et alii* (*The Lancet*, November 6, 1943) state that the water-pitressin test for the diagnosis of epilepsy may be carried out by the following short method, which they believe to be likely to give the maximum chance of producing a convulsion in an epileptic with the least risk and discomfort to the patient. The patient is kept in bed and given a normal diet throughout the test and for twenty-four hours after it. A pint of fluid is given each hour from 7 a.m. until the test is discontinued, usually at 5 p.m. Pituitrin is given hypodermically every hour from 10 a.m., the doses being 0·2, 0·3, 0·4 and 0·5 mil, followed by four doses of 0·5 mil, a total of eight injections. The patient is weighed, after he has emptied his bladder at 6.55 a.m., at intervals of three hours for twelve hours, and again at the end of twenty-four hours. The blood pressure is measured every two hours from 9 a.m. or more frequently if there are great fluctuations. Fluid given includes water, lemonade, milk and milk foods. Fluid intake and output, including urine and any vomitus, is measured from 7 p.m. on the previous day until the morning after the test; this gives a check on water retention apart from gain in weight. The test is stopped at once and one grain of phenobarbital given by mouth if a seizure occurs. It is also stopped if there is distressing vomiting, abdominal discomfort or severe and persistent headache. Seizures usually occur from 5 p.m. onwards. In about 40% of epileptics the diagnosis may be established at once by this test if it is in doubt. The test should be applied only to young and healthy subjects.

British Medical Association News.

MEETING OF THE FEDERAL COUNCIL.

A MEETING of the Federal Council of the British Medical Association in Australia was held at British Medical Association House, 135, Macquarie Street, Sydney, on May 30 and 31 and June 1, 1944, SIR HENRY NEWLAND, the President, in the chair.

Representatives.

The following representatives of the Branches were present:

New South Wales: Dr. George Bell, O.B.E., and Dr. W. F. Simmons.

Queensland: Dr. A. E. Lee and Colonel D. Gifford Croll, C.B.E.

South Australia: Sir Henry Newland, C.B.E., D.S.O., and Dr. R. J. Verco.

Tasmania: Dr. C. Craig and Dr. J. S. Reid.

Victoria: Dr. F. L. Davies and Dr. H. C. Colville.

Western Australia: Dr. N. M. Cuthbert and Dr. F. W. Carter.

Urgent Meeting.

It was noted that the meeting was an urgent one and that it had been called in accordance with the provisions of Article 33 of the Federal Council. Three Branches, the Queensland, New South Wales and Western Australian Branches, had made a request in writing that an urgent meeting should be convened, and the meeting had therefore been called by the President.

Minutes.

The minutes of the previous meeting of January 31 and February 1 and 2, 1944, which had been circulated amongst members, were taken as read and signed as correct.

The Appointment of Dr. Charles Hill as Secretary of the Association.

The President called the attention of members to an announcement in the *British Medical Journal* that Dr. Charles Hill had been appointed Secretary of the Association in succession to the late Dr. George Cranston Anderson, and it was resolved that the congratulations of the Federal Council should be offered to Dr. Hill on his appointment.

Finance.

Dr. George Bell presented the financial statement and balance sheet, as at December 31, 1943. The statement, which included the Federal Council account and the Australasian Medical Congress (British Medical Association) Fund Account, was received and adopted.

It was resolved that a further call of 4s. per member be made on the Branches to meet the general expenses in 1944.

The Federal National Health Insurance Emergency Account.

At the previous meeting of the Federal Council, on the presentation of the financial statement of the national health insurance emergency fund, it had been resolved that a legal opinion should be obtained regarding the possibility of utilizing the money in the fund for organization purposes. The General Secretary said that a legal opinion had been obtained and had been sent to the Branches. The Branches had also been asked whether they would consent to the money being used for organization purposes. The Tasmanian, Queensland, Victorian, Western Australian and South Australian Branches had agreed. The New South Wales Branch, it was reported, intended to refer the matter to the local associations. Dr. H. C. Colville expressed doubt as to whether the Branches had any say in the matter, in that the money had been handed by them to the Federal Council. After some discussion Dr. Colville said that he thought that the money should be earmarked for special purposes. He could not see why the general funds of the Federal Council should benefit by the money in question, especially as it had just been resolved to call up a sum of 4s. per member from the Branches. He thought it unwise to set the money apart for a special purpose, in view of difficulties already experienced in regard to money so tied. It was finally resolved, on the motion of Dr. N. M. Cuthbert, seconded by Dr. F. W. Carter, that, provided the New South Wales Branch consented, the moneys standing to the credit of the Federal National Health Insurance Emergency Account should be used from time to time for organization purposes and for any other matters considered by the Federal Council to be necessary.

Recompense to Federal Representatives Attending Conferences et cetera.

At the previous meeting of the Federal Council, consideration had been given to the recompense of Branch representatives who attended federal conferences and other gatherings as representatives. The matter had been introduced by the Western Australian Branch. The Federal Council had then resolved that it should be a recommendation to the Branches that a member of the Federal Council, while absent from his practice on authorized business of the Council, should be paid by the Federal Council an amount of two guineas *per diem* in addition to the amount of 30s. *per diem* for living expenses, in order to reimburse him for absence from his practice, and that this arrangement should take effect as from January 1, 1944. The General Secretary reported that this resolution of the Federal Council had been approved by all the Branches. It was resolved on the motion of Dr. A. E. Lee, seconded by Dr. George Bell, that the by-law concerned should be amended in the manner suggested, so that it would read:

> The expenses of members of the Federal Council attending any meeting of the Federal Council or of a committee or subcommittee thereof, which in pursuance of the regulations are to be defrayed out of the general funds of the Federal Council, are the first-class travelling expenses, and in the case of a member attending a meeting who is unable to return home at night from the place of meeting, the sum of 30s. shall be paid to him for every night necessarily absent from home and the sum of 42s. for each day necessarily absent from his practice.

A Full-Time Secretariat.

At the previous meeting of the Federal Council the full-time secretariat was discussed, and the views of the New South Wales Branch as expressed by Dr. George Bell were accepted. According to these views, the New South Wales Branch was willing to release Dr. J. G. Hunter for full-time duty with the Federal Council, but it did not believe that the work was yet sufficient to occupy his whole time. The New South Wales Branch therefore thought that the Federal Council appointment should be on a part-time basis. It was noted that the New South Wales Branch had been informed of the Federal Council's decision, and that the arrangements could be regarded as completed. The correspondence was received.

Decorations Received by Medical Officers of the Australian Armed Forces.

The General Secretary reported that on behalf of the President and members of the Federal Council he had offered congratulations to the following members of the Australian armed forces, who had been honoured by His Majesty the King: Brigadier W. A. Hailes, C.B.E.; Lieutenant-Colonel W. Refshauge, O.B.E.; Lieutenant-Colonel R. Smibert, O.B.E.; Surgeon Lieutenant R. M. Macintosh, M.B.E.; Major K. J. J. Dorney, D.S.O.; Surgeon Lieutenant R. A. Duval, D.S.C.; Captain V. E. Sampson, M.C.

The Australian Dental Association.

At the previous meeting of the Federal Council, the Victorian Branch forwarded a request of the Dental Board of Victoria for the support of the British Medical Association in the request of the dental profession through the Australian Dental Association that dental fees should be allowed as deductions for income tax purposes, and it was resolved that support should be given. The General Secretary reported that he had written to the Dental Association, asking what action had already been taken, and a reply had been received that the federal officers would appreciate suspension for the present of any action on the Dental Association's behalf by the British Medical Association. The correspondence was noted.

Housing Standards Committee.

At the previous meeting of the Federal Council a request was received from the Director-General of the Ministry of Post-War Reconstruction, that the Federal Council should appoint a delegate who would attend meetings of the Technical Bodies Advisory Committee on Housing Standards. Professor Harvey Sutton was appointed delegate. The General Secretary stated that he had received a report from Professor Harvey Sutton, in which he stated that throughout the discussions of the committee he had held a "watching brief" in regard to matters of health. Professor Harvey Sutton forwarded with his own report a copy of the report of the Technical Bodies Advisory Committee. In his own

report he discussed shortly several points in the committee's report which he regarded as controversial. He also referred to the variations in the structure of homes which were necessary in view of the varying climates in different parts of Australia. He suggested that the Technical Bodies Advisory Committee's report should be forwarded to the several Branches of the British Medical Association, in order that he might be informed of the local needs of the different parts of the Commonwealth, and also have the weight of the Association behind him when presenting these views. It was resolved that Professor Harvey Sutton's suggestion should be accepted, and that the report should be sent to the Branches.

Workers' Compensation in South Australia.

At the previous meeting of the Federal Council consideration was given to recent amendments which had been introduced into the South Australian *Workers' Compensation Act*, 1932-1941. According to these amendments, matters in dispute were to be referred to a judge of the Supreme Court, instead of, as previously, to a board composed of three members of the profession, a procedure which had operated successfully. The South Australian Branch had taken exception to this provision, and had forwarded a letter of protest to the South Australian Treasurer. It was considered at the previous meeting of the Federal Council that the matter was one which concerned the whole profession of the Commonwealth, and it was resolved that the Council should give every possible support to the South Australian Branch. The General Secretary reported that he had communicated with the South Australian Treasurer, and that the South Australian Government wished the matter deferred until after the forthcoming elections. The correspondence was received.

The Commonwealth Council for National Fitness.

The Federal Council had before it a report of the seventh session of the Council for National Fitness. The report was received, and it was resolved that a copy should be sent to each of the Branches.

Psycho-Analysis by Non-Medical Persons.

The Federal Council had before it a communication from the Queensland Branch regarding a letter that had been received from a clergyman in Queensland, inquiring how he might fit himself to practise psycho-analysis and what the attitude of the medical profession would be to such a proposal. The General Secretary said that from inquiries made by him it appeared that members of the medical profession best qualified to judge held that a practising psycho-analyst should always have a medical qualification. When, however, the subject was pursued by such scientific persons as anthropologists, who did not practise, a medical qualification was not necessary. The General Secretary said that he had conveyed this opinion to the Queensland Branch. Dr. A. E. Lee said that the matter had given rise to a good deal of discussion at a meeting of the Queensland Branch Council, which had held that any person wishing to practise clinically as a psycho-analyst should have a medical qualification, such as was required by the Society of Psycho-Analysts. Dr. Lee did not agree with this decision. He wished the Federal Council to give serious consideration to the matter. Dr. F. L. Davies said that it was essential that a psycho-analyst should have a medical qualification. The President expressed the opinion that if a medical person in the course of his practice associated himself with lay practitioners of psycho-analysis, he would probably be considered by the General Medical Council of Great Britain to be guilty of covering. After further discussion the General Secretary's action was approved.

Medico-Legal Fees Payable in Queensland.

The General Secretary read a communication from the Queensland Branch, drawing attention to certain increases which had been made in professional fees payable to medico-legal witnesses in Queensland. These fees had been published in the *Queensland Government Gazette*. Dr. A. E. Lee explained that the Queensland Branch had been able to secure an increase in the fees, and wrote to the Federal Council so that the Branches might be informed. The correspondence was received.

Responsibility of Hospitals in Regard to their Medical Officers.

The General Secretary reported that he had received a letter from the Queensland Branch in regard to the responsibility of hospitals for actions of their medical officers. The General Secretary stated that he had replied that it was generally held that the board of a hospital was not liable for negligent acts on the part of its qualified medical staff, provided, of course, that the board had exercised reasonable care in the selection of members of the staff, and he referred to the action of Hilary *versus* Saint Bartholomew's Hospital, London, in which a distinction was drawn between administrative acts and professional acts. Dr. A. E. Lee said that the matter had been raised because of the proposal by students of the University of Queensland to form a trades union of resident medical officers and to apply to the Arbitration Court for an award. Dr. H. C. Colville said that the honorary staff was liable for anything done in hospital. He based this remark on a legal opinion which had been obtained by the Victorian Branch. It was resolved that the Secretary's action should be approved.

The Branches and Correspondence of the Federal Council.

The General Secretary reported that he had received a letter from the Western Australian Branch, suggesting that copies of all the Federal Council's correspondence should be sent to the Branch Councils, so that they might be fully aware of all that was going on. He thought that it would be unwise to comply with the request. Dr. F. W. Carter said that he did not think that the request was intended to apply to all correspondence, but only to certain letters addressed to the members of the Federal Council. His own view was that as the representative of the Western Australian Branch, he should refer to the Branch Council any matter which was referred to him, even if it was marked "confidential". The President said that the Federal Council must retain its rights over its own correspondence. The General Secretary explained that two kinds of letters were sent out by the Federal Council office to members of the Federal Council; one included common letters to members of the Federal Council and the other included common letters to members of the Federal Council and the Branches. He did not think that there was anything wrong with the present usage, and insisted that it was not necessary for all matters dealt with by the Federal Council to be referred to the Branches. Dr. H. C. Colville supported this view, and no action was taken.

Broadcast Talks on Child Welfare.

The General Secretary read a letter from the New South Wales Branch, explaining that the Australian Broadcasting Commission had asked that talks on child welfare should be prepared. It was agreed by the Branch that this should be done, and a talk was being given once a week.

A Matter of Urgency.

At the request of the Victorian Branch, the Federal Council considered as a matter of urgency the charge that had been brought against Dr. C. J. Simpson, of Bright, Victoria, a member of the Victorian Branch, for making a misleading statement in an application for tires for his motor-car. It was explained that Dr. Simpson had applied for new motor tires in September, 1943. The state of the tires on the motor-car at that time was such that they were not likely to last very long, and the garage proprietor who serviced Dr. Simpson's cars had agreed that new tires were necessary. In order to keep his car on the road and to give efficient service to his patients, it was necessary that Dr. Simpson should have motor tires that would not fail him suddenly. Dr. H. C. Colville said that the case was a deplorable one. He thought that the Federal Council should enter an emphatic protest against the penalty imposed upon Dr. Simpson, and he thought that the protest should be forwarded to the Commonwealth Attorney-General. He moved a motion to this effect. It was seconded by Dr. F. L. Davies and carried. On the motion of Dr. H. C. Colville, seconded by Dr. C. Craig, it was resolved that a formal request should be made to the Attorney-General for the remission of the fine and costs.

Selection of Students for Medical Courses in Australian Universities.

The Federal Council gave consideration to the selection of students for medical courses at Australian universities, to which reference had been made at a previous meeting. The discussion centred round the failure of an officer in the Australian army to secure admission to an Australian university to continue his medical course. The officer in question had completed one year of his medical studies prior to his enlistment. After discussion of the case presented by this officer, the Federal Council decided to write to the

Minister for the Army, asking that consideration should be given to the question of the officer's release.

After this the subject was discussed in general terms, and reference was made by the President to the address given by Sir Alan Newton a few days previously to the Royal College of Surgeons, in which he had maintained that medical students who had enlisted should be directed after a period to return to their studies (see THE MEDICAL JOURNAL OF AUSTRALIA, June 24, 1944). The Federal Council appointed a subcommittee consisting of Dr. F. W. Carter and Dr. W. F. Simmons to prepare a draft motion dealing with the matter.

After the subcommittee had reported later on in the meeting, it was resolved on the motion of Dr. F. W. Carter and seconded by Dr. W. F. Simmons that the Minister for the Army should be approached with the request that arrangements should be made whereby any person who at the time of enlistment had completed at least the first year of the medical course should be released from the armed forces after a specified period of service for the purpose of continuing his studies. A resolution was also adopted to the effect that the Minister for the Army should be approached and asked that consideration should be given to the release after a specified period of service with the armed forces of any person who at the time of his enlistment had stated that it was his intention to enter the faculty of medicine and was so qualified, for the purpose of commencing his medical studies. It was finally resolved on the motion of Dr. A. E. Lee and seconded by Dr. J. S. Reid, that the Universities Commission should be approached with the request that students in the armed forces intending to take up a medical course should have a prior consideration in a university quota over civilian students of similar academic qualifications.

Australasian Medical Publishing Company, Limited.

The Secretary reported that the Branches had been approached with the request that they should act as agents for the Federal Council to give effect to the provision in certain clauses of the agreement that had been signed between the Federal Council and the company. The correspondence was received.

It was also decided that the Australasian Medical Publishing Company, Limited, should be asked to publish a list of members of the British Medical Association in Australia.

The Organization of the Profession.

The Federal Council had before it some correspondence from the Western Australian Branch dealing with the organization of the profession. One of the suggestions put forward was that a legal opinion should be taken in regard to organization. Dr. N. M. Cuthbert explained that Western Australia was very anxious that the need for organization of the profession should not be forgotten, and he thought that some means should be taken to keep the subject alive. The President pointed out that the Federal Council had before it a report by the General Secretary on the organization of the profession and also that a legal opinion had been obtained on the powers of the Federal Council. Dr. F. W. Carter said that he thought it was most important that either a member of the Federal Council or the General Secretary should visit the Western Australian Branch. He said that Western Australia was greatly handicapped on account of the enormous distances that had to be covered within the State. The General Secretary pointed out that the profession had to decide what organization it wanted, and then it could obtain the necessary legal advice to bring it about. He had hoped to visit Western Australia some time previously, but the activities in the medico-political world had made it impossible for him to undertake the journey. He reminded the members of the Council that the Parent Body would certainly meet the Federal Council in any way that it could. Dr. W. F. Simmons said that the Federal Council should meet from time to time in States other than New South Wales and Victoria. Dr. F. L. Davies expressed the opinion that no further organization was necessary. He said that if any of the Branches thought reform was needed, they should put up concrete proposals. It was finally resolved that the Federal Council did not consider it necessary to secure a legal opinion on the question of organization, and it also agreed that the General Secretary should visit Western Australia as soon as convenient.

The General Secretary's Visit to Tasmania.

The General Secretary reported that it had been necessary to postpone his visit to Tasmania, and added that he proposed to undertake the journey as soon as possible.

Registration of the British Medical Association as a Trades Union.

The General Secretary explained that he had communicated with the Parent Body, since both the Queensland and New South Wales Branches wished to have some information in regard to the registration of the Association as a trades union. The reasons for the request were discussed in detail, and the reply of the Parent Body was read. The view was expressed that the reply of the Parent Body was not particularly satisfactory in that no specific answer was given to the question. The letter was received.

Method of Election of Federal Representatives.

A communication was received from the South Australian Branch regarding the suggestion by a member that representatives to the Federal Council should be elected by members of the Branch and not by members of Branch councils. The General Secretary reported that he had communicated with the Branches in the matter. The Western Australian Branch approved of the election of representatives by members of the Council. Neither the New South Wales nor the Tasmanian Branch approved of the suggestion made in the letter from the South Australian Branch, and both the Victorian and Queensland Branches wrote that they were satisfied with the present arrangement. It was therefore resolved that the South Australian Branch should be advised that the Federal Council could see no reason why the Articles of Association of the Council should be altered.

Medical Coordination Committees.

Reference was made to Regulation Number 67, 1944, of the National Security Regulations. According to this regulation, the medical coordination committees were transferred from the Department of Defence to the Department of Health. The General Secretary said that the matter had been brought to his notice by a communication from the Western Australian Branch, and this was one of the matters which had led three of the Branches to ask for a special meeting of the Federal Council. On receipt of the letter from Western Australia and of a communication from the Queensland Branch, the General Secretary had written to the other Branches to ascertain their views. The Victorian Branch decided to support the Western Australian protest. The New South Wales Branch was strongly opposed to the change, and pointed out that the national emergency had not passed. Both the Tasmanian and the South Australian Branches had agreed that a protest should be made. The General Secretary also said that he had received a letter from the President dated May 15, 1944, in which the President stated that he had been informed by the Secretary of the Central Medical Coordination Committee that the Minister for Defence would not permit the publication of the correspondence relating to the transference of the medical coordination committees from "Defence" to "Health". A long discussion took place on this matter. Reference was made to the formation of a medical coordination committee as long ago as 1928, so that the medical profession would be prepared to meet any national emergency that might arise. Even in those days the matter had been shrouded in the utmost secrecy. On the one hand the view was expressed by Dr. W. F. Simmons that the profession should make the strongest possible protest, and he added that if this failed, consideration might have to be given to the withdrawal of medical representatives from the coordination committees. He could not help feeling that the change was intended to be a permanent one, and other members of the Council agreed with this view. Dr. C. Craig, on the other hand, took the view that no drastic change had been proved as likely to result from the "switch over" from one department to another. He thought it would be a sad day for the profession if it lost the coordination committees as a result of any action that it might take. If the coordination committees went out of existence, the medical profession would be controlled by the manpower authorities. Dr. H. C. Colville sounded a note of caution as to the folly of anything that might be described as direct action. One of the reasons given for the change was that the Minister for Defence had gone abroad. When the Minister returned, there would, in Dr. Colville's opinion, be no necessity for the change to continue. Dr. George Bell described the coordination committees as valuable to the profession, in that they acted as buffers between the profession and State departments. He thought that the change was psychologically a bad move, as it was easy to appeal to a practitioner on patriotic grounds while the committees were under the control of the Department of Defence. Under the new control no such appeal could be made. The President

said that the Central Medical Coordination Committee had been most emphatic in its protest against the change. He added that when the explanation for the change was given to the committee by the Minister, he (the President) had felt that as the representative of the profession, he should be the one to state that the profession would in the interests of the nation carry on as in the past. He did not for one minute regret the action he had taken. After one or two suggestions had been made as to how the Federal Council should proceed, Dr. H. C. Colville, in suggesting a line of action, said that everyone was opposed to the change and desired that some action should be taken. He thought that the strongest possible protest should be made to the Acting Minister for Defence, asking that the matter should be rectified. If this was refused, then a further protest should be made to the Minister for Defence on his return from abroad. Regarding the suggestion that the question of representation of the Association on the coordination committees would have to be considered, Dr. Colville said that it would be most fantastic if, because of something that had happened and about which strong disapproval was felt, action should be taken that would deprive the profession of bodies which were doing valuable work for it. The existence of these bodies was, he held, essential to the interests of the profession. The alternative—control by the manpower authorities—was something which no member of the profession wanted. The basis of objections to the change was the fear that the committees would now function in a way in which they had never before functioned, and the question was whether the profession's fear in this direction was justified. He thought that the attitude to adopt was to ask the representatives of the Council to continue to act as in the past, and to report if they thought that any of the fears of the Council were being justified. If this should happen, there would then be plenty of time to consider the withdrawal of representatives. Dr. C. Craig expressed his appreciation of Dr. Colville's review of the position, and referred members of the Council to some past history, which illustrated the folly of direct action. Eventually, on the motion of Dr. H. C. Colville, seconded by Dr. F. W. Carter, it was resolved:

> That the Federal Council voices the strongest possible protest against the transfer of the medical coordination committees from the Department of Defence to the Department of Health.

On the motion of Dr. H. C. Colville, seconded by Dr. W. F. Simmons, it was further resolved:

> That a formal request be made to the Minister for Defence for a return to the original arrangement.

It was then resolved on the motion of Dr. H. C. Colville, seconded by Dr. J. S. Reid:

> That if the request to the Acting Minister for Defence be refused, a further request be addressed to the Minister for Defence on his return from abroad.

On the motion of Dr. H. C. Colville, seconded by Dr. F. D. Davies, it was resolved with three dissentients:

> That representatives of the Federal Council on the Central Medical Coordination Committee be requested to continue to serve on that body and be requested to report immediately to this Council (i) any proposal for alteration in the duties of the committee, (ii) any proposal for any extension of the activities of the committee, (iii) any proposal for the prolongation of the life of the committee beyond the authorized period.

Discussion then took place as to the reasons which the Council should submit in its letter to the Acting Minister for Defence against the transfer of the coordination committees from "Defence" to "Health". Dr. H. C. Colville and Dr. C. Craig were appointed a subcommittee to draft a letter embodying the Federal Council's views. Subsequently the subcommittee presented its letter, which, after slight verbal alteration in one respect, was accepted. The letter is as follows:

> The Federal Council of the British Medical Association representing the medical profession throughout Australia views with alarm the recent transfer of the control of the Central Medical Coordination Committee from the Department of Defence to the Department of Health.
>
> Ever since its inception, the Coordination Committee has been regarded by the medical profession as a body which was essential for the proper allocation of the medical manpower of the Commonwealth under war conditions; and as a corollary the control over the affairs of individual doctors which was inherent to the committee's activities, and which virtually amounted to conscription of the whole medical profession, has been accepted without question.
>
> Any suggestion that such regimentation would be tolerated under normal or peace-time conditions would have been regarded as absurd. The transfer of the control of the Coordination Committee to the permanent peace-time Department of Health conveys such a suggestion, and carries an implication that the Coordination Committee's existence has some basis other than war emergency.
>
> In spite of the reply by the Acting Minister for Defence to the representations of the Coordination Committee, giving an assurance that the committee would continue to function as hitherto, the feeling cannot be escaped that the spirit of cooperation which has always actuated the medical profession may be seriously undermined by the change of administration.
>
> Under these circumstances the Federal Council voices the strongest possible protest against the transfer of the control of the Central Medical Coordination Committee from the Department of Defence to the Department of Health, and formally requests the Commonwealth Government to restore the original arrangement.

The Contract Practice Subcommittee.

The General Secretary said that it was necessary to reappoint the Contract Practice Subcommittee of the Federal Council. It was resolved on the motion of Dr. George Bell and seconded by Dr. A. E. Lee that the Contract Practice Subcommittee should be reappointed as follows: New South Wales, Dr. H. R. R. Grieve; Queensland, Dr. L. P. Winterbotham; South Australia, Dr. R. J. Verco; Tasmania, Dr. J. R. Robertson; Victoria, Dr. C. H. Dickson; Western Australia, Dr. M. K. Moss; together with the President, *ex officio*.

Contract Practice.

The Capitation Rate in Victoria.

Further reference was made to the capitation rate paid by friendly societies in Victoria in respect of the lodge agreement, and also to the proposed introduction of the Federal Common Form of Agreement, which was depending on the acceptance by the Victorian friendly societies of a higher rate than that paid by them previously. The matter had been discussed at several previous meetings of the Federal Council, and what appeared to be an impasse had been reached. It was now reported, however, that further consultations had been held between the Victorian friendly societies and the Council of the Victorian Branch. The Victorian friendly societies had agreed to accept the increase in the rate, and the announcement was received with satisfaction. It was pointed out that all that remained before effect could be given to the proposed increase was to receive the consent of the Prices Commissioner. It would then be possible to introduce the Federal Common Form of Agreement.

Evening Hours for Lodge Patients.

The General Secretary said that he had had correspondence from the Queensland Branch and with one of the local associations in New South Wales in regard to the question of evening hours for lodge patients. The Queensland Branch wished to know whether the custom of having consultation hours for lodge patients in the evening had been abandoned in other places. The General Secretary had replied to the Queensland Branch that he had obtained information from one of the local associations in New South Wales where the custom had been adopted. He informed the Branch that the members of the local association in question had advertised in the local Press the decision to discontinue evening hours for lodge patients. The members, however, had continued to hold consultations in urgent cases and had also seen patients by appointment. They had reported that this had worked extremely well, and that there was no increase in attendance in patients' homes. One member of the Council remarked that if there were no evening hours, the practitioner would probably have to work harder paying visits at night. The Secretary's action was approved.

The National Health and Medical Research Council.

The General Secretary reported that he had received copies of the report of the sixteenth session of the National Health and Medical Research Council, held on December 1 and 3, 1943, and had forwarded copies to members of the Federal Council.

Dr. W. F. Simmons, the representative of the Federal Council on the National Health and Medical Research Council, gave a *résumé* of the discussions which took place at the seventeenth session held at Canberra on May 24, 1944. He said that the discussions had centred chiefly round the problem of venereal disease and the declining birth rate. During the discussion on venereal disease the medical heads of the services had been present, and great satisfaction was expressed at the low incidence of venereal disease in the forces. There was practically no venereal disease among women in the services. In regard to the falling birth rate, the chief aspects had been presented to the meeting by the chairman, and a committee had been appointed to examine the problem of obtaining information. The members of this committee were, with the exception of Professor R. Marshall Allan, of Melbourne, all resident in New South Wales. Among those appointed was a general practitioner of wide experience.

Dr. Simmons also said that a resolution had been adopted, stating that a conference should be called in Canberra early in September, consisting of members of the Federal Council and the members of the National Health and Medical Research Council, together with representatives of the Royal Colleges, for the purpose of discussing the improvement of medical services to the community.

Salaries of Ships' Surgeons.

Reference was made to the salaries payable to ships' surgeons, and correspondence was read from the Victorian Branch dealing with the position of one of its members who was medical officer to a shipping company. Under the old arrangement entered into many years before, the ship's surgeon received a salary of £300 *per annum*, and was allowed to charge certain fees to passengers. Since the outbreak of war, no passengers had travelled, and the position of the ship's surgeon was unsatisfactory. He was, in regard to the conditions of payment, not on the same footing as either the ship's officers or the other members of the crew. It was reported that representations had been made on his behalf to the shipping company, which had given sympathetic consideration to the matter. As a result it had been agreed that the surgeon in question should be paid a salary of £600 a year, and that he should have three weeks' holiday a year on full pay. The information had been forwarded to the Branches. Several of the Branches had expressed satisfaction at the arrangement, and the New South Wales Branch had expressed the view that the terms were acceptable as a minimum.

Immunization of Children against Pertussis.

A letter was received from the New South Wales Branch, suggesting that an approach be made to the Commonwealth Serum Laboratories regarding the possibility of combining diphtheria and whooping cough antigens in one preparation for immunization. The General Secretary explained that the matter arose as a result of a request by a municipality near Sydney for information regarding the immunization of children against pertussis. He also reported that information had come to the effect that the Commonwealth Serum Laboratories were already engaged on an investigation of the kind mentioned. It was decided to take the matter up with the Director-General of Health.

The Advertising of Proprietary Medicines.

At the instance of the South Australian Branch, the Federal Council considered the advertising of proprietary medicines. Attention was drawn to a statement appearing on page 462 of the *British Medical Journal* of October 9, 1943. This statement reported an action taken by the Newspaper Proprietors' Association in England in the control of advertisements of proprietary medicines in English newspapers. The suggestion was made that the Federal Minister for Health should be urged to regulate medical advertising in the Press and on the radio. After discussion it was resolved that the Federal Council should communicate with the Chairman of the Australian Newspaper Proprietors' Association, and should ask that similar action be taken by the Australian Press.

Insurance Companies and their Accident and Sickness Policies.

The South Australian Branch drew attention to the inadequate list of diseases for which cover was given by Australian insurance companies in accident and insurance policies. The list included very few if any of the usual ailments which caused disablement amongst the community. The South Australian Branch thought the companies should revise the list. The General Secretary said that he had obtained the views of the Branches and they were all in agreement with the South Australian Branch. On the motion of Dr. R. J. Verco, seconded by Dr. H. C. Colville it was resolved that an approach in the matter should be made to the Fire and Accident Underwriters' Association.

Footwear.

At a previous meeting of the Federal Council consideration was given to the difficulty of obtaining footwear for crippled children. The matter was considered again at the instance of the New South Wales Branch, which forwarded a further report from the orthopædic group of the Branch. It was pointed out that no improvement had taken place, and that under existing conditions it was almost impossible to obtain special shoes for crippled children. When shoes were obtainable, they sometimes took so long to be made that the children had grown out of them, or the orthopædic condition from which the child had suffered had deteriorated and the shoes were of no value. The General Secretary stated that he had interviewed Mr. J. S. Rosevear, Controller of Leather Supplies, and two of his administrative officers, who were all very sympathetic and admitted frankly the urgency of the problem, due mainly to manpower difficulties. They had promised to make a survey of the position and to see whether it was possible to obtain any trained boot-makers from the armed services and whether it was possible to utilize unskilled labour in assisting the trained personnel. Mr. Rosevear admitted the importance of doing something immediately and would advise as soon as possible of any action taken. As no further action at the moment seemed possible, the correspondence was received.

Medical Planning.

Report of the Medical Planning Committee of the Parliamentary Joint Committee on Social Security.

The Federal Council had before it the interim report of the Medical Planning Committee of the Parliamentary Joint Committee on Social Security. This committee met at Canberra on December 9, 1943, and was composed of three members representing the Parliamentary Joint Committee on Social Security, three members representing the British Medical Association in Australia, one member representing the Director-General of Health of the Commonwealth, and two members representing the Medical Survey Committee of the Parliamentary Joint Committee on Social Security. The General Secretary explained that the interim report had been received and that arrangements were made for its publication in THE MEDICAL JOURNAL OF AUSTRALIA. However, just before the report was to be published, a request had been received that publication should be withheld, on the grounds that the report was the report of a committee, and that it had not been presented to the conference which had appointed the committee. The General Secretary remarked that he thought the report should be published, in order that the medical profession might see what the Federal Council had been doing on its behalf. It was resolved after discussion, on the motion of Dr. F. W. Carter, seconded by Dr. N. M. Cuthbert, that the Federal Council should approach the Chairman of the Parliamentary Joint Committee on Social Security and ask that permission might be granted for the publication of the full report of the Medical Planning Committee in THE MEDICAL JOURNAL OF AUSTRALIA.

Seventh Interim Report of the Parliamentary Joint Committee on Social Security.

The General Secretary referred to the seventh interim report of the Parliamentary Joint Committee on Social Security, and said that a copy had been sent to the members of the Federal Council. This report dealt almost entirely with hospitals and the admission of patients. It was pointed out that the report raised the whole question of the honorary system. After a short discussion the report was received.

Report of the Medical Planning Committee of the Federal Council.

The Federal Council had before it a further contribution from the Medical Planning Committee of the Federal Council. The document was read by the General Secretary, who referred at the same time to work that had been done by the Medical Planning Committee of the New Zealand Branch. Dr. A. E. Lee said that the present instalment taken in conjunction with the report received at the previous meeting of the Federal Council was really a clear statement of the attitude of the Federal Council towards medical planning. Reference was made in the discussion to the question

of government control. The Western Australian representatives held that there were certain circumstances in which some government control might be necessary, and it was therefore not reasonable to oppose every form of government control.

On the question of the disposal of the report, Dr. C. Craig congratulated the committee on the excellence of its effort. He thought that the report should be prefaced with a statement that it embodied the views of the Federal Council as to how the medical services could best be developed. Dr. H. C. Colville asked whether any further instalments would be forthcoming. He thought that the two documents already received should be correlated with the principles and policy of the Federal Council. The President thought that the Federal Council should decide on the final plan and then send the document to the Branches for their information and not for amendment. After some discussion, in which the question of government control was mentioned, it was resolved that the report should be sent to the Branches for their consideration, with the request that it be treated as a matter of urgency.

The Resolutions of the Victorian Branch Convocation.

The Federal Council had before it the resolutions of the Victorian Branch Convocation. After some preliminary discussion by several members, Dr. H. C. Colville pointed out that the resolutions of convocation represented the policy of the Victorian Branch on medical planning. The Branch Council had sent the resolutions of the convocation to the Federal Council, in the hope that they might be acceptable to the Branches and so to the whole profession in Australia. The Victorian Branch had no desire for any change in the form of medical practice to be brought about during the war or for one year afterwards. The Byrne scheme, which figured largely in the resolutions of convocation, was put forward as one acceptable substitute for any unacceptable scheme that might be proposed by the Government. There were, as far as he could see, two ways in which the Federal Council might approach the subject. First of all, it might say, as its planning committee had said, that no scheme for a medical service under government control could be acceptable to the profession, or else it might say that whilst it opposed any change in medical practice, if the Government insisted on introducing a scheme for general medical service, it would be prepared to submit a scheme that would be more acceptable to the profession than the one proposed by the Government. There was, he thought, no doubt that the least objectionable scheme would be a fee-for-service scheme. If the Council took this view, it would have to give consideration to the resolutions of the Victorian Branch Convocation. Dr. W. F. Simmons said that no harm could come from the acceptance by the Council of the scheme as outlined by the Victorian Branch as one acceptable substitute for any unacceptable scheme proposed by the Government. After further discussion, it was resolved on the motion of Dr. N. M. Cuthbert and seconded by Dr. C. Craig:

> That the policy of the Victorian Branch with regard to a national medical service conducted on the fee-for-service principle be adopted as one acceptable substitute for any unacceptable scheme proposed by the Government.

Report of the New Zealand Branch Planning Committee.

The Federal Council had before it the provisional report of the Medical Planning Committee of the New Zealand Branch, issued in April, 1944. The report was noted.

The Pharmaceutical Benefits Act.

At its previous meeting the Federal Council considered the proposals that were then being made for the introduction of a pharmacy benefits scheme. At that discussion members of the Federal Council had been reminded of the statement made by the President at Canberra last December, that the profession wished to retain its freedom in the matter of prescribing for patients, and it then resolved that, provided this principle was recognized by the Government in its scheme for pharmacy benefit, the Federal Council would undertake to recommend to the members of the Association in Australia the fullest cooperation in the use of an official formulary. The Council at its previous meeting adopted two further resolutions. In the first of these, it pointed out that sums of money could be expended to much better advantage on such measures as hospital construction and equipment, the care and treatment of tuberculosis sufferers, maternal and child welfare, and the diagnosis and treatment of cancer, than on providing free medicine for the community. The second of the resolutions pointed out that it was in the interests of the patient that the practising medical profession should be adequately represented on the body controlling any such scheme, and that this body should be statutory.

The General Secretary gave a short outline of the happenings at Canberra during the passage of the *Pharmaceutical Benefits Act*. In this regard readers are referred to the issue of April 1, 1944, at page 302, in which a *précis* is given of the discussion that took place in the Senate when the bill was introduced by Senator the Honourable J. M. Fraser, Minister for Health. The President then directed the attention of the Council to a letter from the Minister, asking for the nomination of six members of the Association who would be willing to act as members of a formulary committee. Dr. F. W. Carter said that before the question of the nomination of these persons was considered, the Federal Council should decide what attitude it would adopt in regard to the complete freedom of prescribing that had been referred to by the President in his statement of last December. The President pointed out that there were two questions to be considered, the first whether the Federal Council would nominate members to a formulary committee, and the second, what measure of cooperation should be given to the act. In his view there was one great principle at stake, and it concerned the medical profession not only in Australia, but in every other part of the world. He asked whether the Federal Council should allow the Government to say how best the skill of the profession should be used. Only recently the Acting Prime Minister had declared that the Government stood for the freedom of the individual. Dr. H. C. Colville could not see that there was any ground whatever for discussion in regard to partial or complete cooperation. He was opposed to cooperation in the working of an act which was not directed to the benefit of the public. He then enumerated the objections to the act that had been formulated by the Victorian Branch. The Victorian Branch held: (i) The restricted application of benefits to prescriptions within a limited formulary was absolutely unjustifiable, in that it deprived persons whose medical requirements were outside the formulary of any benefits whatsoever. (ii) It would increase the burden of doctors, who were already overburdened by war conditions. It would lead to unnecessary consultations and it would create the possibility that a doctor at every consultation might have to argue with the patient so that he would accept a prescription for which he would have to pay, because it was for his own good. (iii) It prescribed drastic penalties for doctors for carrying out certain perfectly legitimate procedures, such as prescribing without examination for patients whose requirements were well known to them. (iv) It would not improve the health of the community. (v) It was a breach of faith with the medical profession. (vi) The money to be spent was urgently needed for other purposes, which would improve the health of the community. (vii) The method of administration was unacceptable. (viii) There had been no public demand for free medicine. (ix) The measure was probably unconstitutional. Dr. Colville added that there were certain other political objections. He thought that the first action the Federal Council should take was to rescind its resolution of January 31, 1944, which has already been mentioned—that, provided a certain principle was recognized by the Government, the Federal Council would recommend members of the Association to give cooperation. He therefore moved, and Dr. F. L. Davies seconded, a motion that this should be done. The motion was carried.

After further discussion, Dr. H. C. Colville said that the Council should tell the profession that the act was not good and allow them to draw their own conclusions. After further discussion it was resolved, on the motion of Colonel D. Gifford Croll and seconded by Dr. H. C. Colville:

> That the Federal Council will not be a party to the act, that is, the *Pharmaceutical Benefits Act*, which it considers to be almost entirely without merit.

Dr. C. Craig said that a statement should be drawn up which would show why the Council objected to the act. Colonel D. Gifford Croll and Dr. F. L. Davies were then appointed a committee to draft letters that should be sent to the Government and to the Branches, setting out the reasons for the Federal Council's objections to the act.

Later on in the course of the meeting, Dr. F. L. Davies presented a draft statement of objections. During the discussion on this statement, the President said that he thought the whole question should be raised to a high spiritual level. The fact that Parliament had put this act on the statute book had to be accepted. First the question of the formulary had been the main point of contention. Then Clause 16 had been introduced into the bill, and this raised another matter for contention. The President insisted

that both the formulary and the contract provided for in Clause 16 interfered with the freedom of the profession. The question of freedom was really the main issue, and the Council should confine itself to this issue. He held that there could be no cooperation with the Government if this right of the doctor to be free and to prescribe whatever he thought to be necessary in the interests of the patient was not accepted. After further discussion consideration was deferred for a time, in order to give the members of the Council a better opportunity of considering the draft statement.

When discussion was resumed, the President said that he disagreed with the statement, and submitted another which had been drafted by himself. After further discussion the President's statement was accepted with an alteration in the last paragraph. The statement finally adopted was as follows:

> I have submitted to the Federal Council of the British Medical Association your letter in which you express the hope that the medical profession will cooperate with the Government in the application of the *Pharmaceutical Benefits Act* by adhesion to a Formulary. Your letter also conveyed an invitation to me to nominate six members of the medical profession who would be competent and who might be willing to serve on the Formulary Committee. The Federal Council fully recognizes that the act is now law.
>
> It has given the fullest consideration to the question of cooperation and to your invitation.
>
> I have been requested to convey to you with all respect the opinion of the Federal Council that rigid adhesion to a Formulary, and all the more if enforced by contract, violates the first great principle of medical practice, namely, that whatever the organization, the doctors taking part must remain free to direct their clinical knowledge and personal skill for the benefit of their patients in the way in which they feel to be the best. The Federal Council holds that the medical profession in the interest of the public weal must retain the priceless assets of individual freedom and enterprise. On this principle the Federal Council can make no compromise.
>
> If the Government will accept the application of this principle in the operation of the act the Federal Council respectfully suggests that a conference should then be held with you to consider other clauses with which the Council finds itself in disagreement.

Publicity Committee.

It was resolved on the motion of Dr. F. L. Davies and seconded by Dr. H. C. Colville that Dr. George Bell and Dr. W. F. Simmons should be reappointed members of the publicity committee.

War Emergency Organization.

Conditions of Service Committee.

It was resolved on the motion of Dr. George Bell and seconded by Dr. W. F. Simmons that Dr. F. L. Davies and Dr. H. C. Colville should be reappointed members of the Conditions of Service Committee with powers of cooption.

Repatriation Commission.

On previous occasions the Federal Council had discussed the question of medical benefits for widows, orphans and widowed mothers of the present war. The General Secretary reported that he had still not received any reply from the Minister regarding the proposed agreement between the Repatriation Commission and the Federal Council for the institution of a medical service for the benefit of widows, orphans and widowed mothers of men serving with the defence forces in the present war. At a previous meeting it had been reported by Dr. H. C. Colville and Dr. F. L. Davies, who interviewed the Minister, that he was in agreement with the suggested amount of payment, but could not agree with regard to the clause requiring readjustment of the payment according to the basic wage index. Dr. A. E. Lee said that in Queensland no difficulty had been experienced by the Repatriation Department in working under the arrangement by which the rate of payment varied with the nominal wage index figure. The Queensland Branch Council thought that the Repatriation Department should be advised that no further persons would be accepted for medical benefits under the terms of the old agreement. Dr. H. C. Colville said that the department was not playing fair. The original arrangement had been made for a period of three months, and this had occurred three years previously. He thought that members of the Association should be notified that no agreement existed between the Federal Council and the Repatriation Department, and that there was no obligation on them to accept new beneficiaries on the old basis. He thought that the idea of waiting further was Gilbertian. It was resolved on the motion of Dr. W. F. Simmons and seconded by Dr. A. E. Lee:

> That the Minister for Repatriation be informed that, in view of the prolonged and unsatisfactory negotiations that have taken place between the Federal Council and the Repatriation Commission, the tentative arrangement, the duration of which has long since expired, will be terminated as from June 30, 1944.

The Federal Council then considered the letter which it had received from the Western Australian Branch regarding the fact that medical officers of the Repatriation Department had no right of appeal against decisions of the Repatriation Commission. It was pointed out that when a medical officer was censured by the commission, he had no right of appeal—the decision of the commission was final. Dr. N. M. Cuthbert pointed out that a good deal of feeling existed in regard to this question, and it was important to remember that the commission, which was the final court of appeal, was a lay board. He thought that the conditions of service of medical men serving under the Repatriation Department should be investigated. After further discussion it was resolved that consideration should be deferred pending the receipt of further information.

Rehabilitation of Medical Officers in the Armed Services.

At its previous meetings the Federal Council had considered the rehabilitation of medical officers in the armed services. At its meeting in March, 1943, the Federal Council had recommended that the Central and State Medical Coordination Committees should form a basis of the committees necessary for the rehabilitation of medical men, and that to these committees should be added reresentative medical men of the armed forces and of civilian medical services under forty-five years of age. It was pointed out that since the Coordination Committee had passed under the control of the Department of Health instead of the Department of Defence, the subject of repatriation should be reconsidered. From the discussion it appeared that there were three ways in which rehabilitation might be effected. The first was by the medical coordination committees. The second was by the Department of Post-War Reconstruction, and the third was by the medical profession itself. These three methods were discussed. It was pointed out that while it might be held that the Department of Post-War Reconstruction was responsible, the coordination committees were more entitled to undertake the work in view of the part they had taken in medical coordination throughout the war. As between these two departments some members of the Federal Council expressed the view that rehabilitation could be effected far better by a medical body, such as the coordination committees, than by the Department of Post-War Reconstruction, which was not a medical body. Another view presented was that the British Medical Association should be prepared to rehabilitate its own members. The General Secretary pointed out that it was the policy of the Government that every soldier should be properly reestablished in civil life. In regard to members of the medical profession, two aspects of reinstatement had to be considered. The first dealt with post-graduate education and the second with placement in a position of security. He thought that post-graduate education was beyond the powers of the Association, because it involved not only the cost of education, but also the cost of maintenance of the medical officer and his dependants while he was receiving education. The General Secretary did not think that the Association was in a position to finance such a project. He thought, however, that the placement of demobilized medical officers was not beyond the capacity of the Association, although it would require a good deal of organization. After full discussion it was resolved on the motion of Dr. A. E. Lee and seconded by Dr. N. M. Cuthbert:

> That having considered the statement setting out the steps the Central Medical Coordination Committee has taken with regard to rehabilitation and post-graduate instruction, the Federal Council through its reresentative informs the Central Medical Coordination Committee that it, the Federal Council, desires to play the major part in the placement of medical service personnel in civil practice.

It was also resolved on the motion of Dr. A. E. Lee and seconded by Dr. W. F. Simmons:

> That the functions of the Central Medical Coordination Committee and the State medical co-

ordination committees in reference to rehabilitation of service medical officers should be limited to priority of discharge and the arrangement of post-graduate studies and the finance thereof.

It was also resolved on the motion of Dr. W. F. Simmons and seconded by Dr. H. C. Colville:

That the Federal Council is of the opinion that in regard to their rehabilitation, medical officers from the armed forces should be entirely free to make their own decisions with advice and help from the State medical coordination committees.

The General Secretary read a letter from the New South Wales Branch forwarding a copy of a proposed *questionnaire* to be sent to civilian practitioners in regard to openings for the placement in private practice of medical officers from the services. The letter and *questionnaire* were noted.

The General Secretary said that a communication had been received from the Standing Committee of Services Medical Directors in regard to notification in the Press of the resumption of civil practice by members of the medical branches of the fighting services on their release from service. It was pointed out that some notification was permissible in all States but New South Wales, and the Standing Committee of Services Medical Directors wished to know whether the position in New South Wales in this regard might not be reviewed. The matter had been referred to the New South Wales Branch, which had replied that its rules did not allow of any such notification being made, but that approval had been given to the display of a printed notice in the waiting rooms of colleagues to the effect that Dr. So-and-So had returned to his practice after absence on national service, and that it was the express wish of his colleagues that his former patients would place themselves under his care. It was also stated that under the *Medical Practitioners Act* of New South Wales, no advertisements in the Press were allowed. The correspondence was received.

A letter was read from the New South Wales Branch, stating that the Branch Council had been approached by members who had been released from full-time duty with the armed services, with the request that steps should be taken to publish each week in THE MEDICAL JOURNAL OF AUSTRALIA a list of members who had been so released, together with their addresses and the dates on which private practice was to be or had been resumed. The Council agreed with this proposal, and suggested to the Federal Council that the Board of Directors of the Australasian Medical Publishing Company, Limited, should be approached in regard to the practicability of the suggestion and their willingness to put it into effect. It was resolved on the motion of Dr. W. F. Simmons and seconded by Dr. George Bell that the matter should be taken up with the directors of the Publishing Company.

The Medical Attendance on Members of the Military Forces by Civilian Practitioners and the Payment of Mileage.

At previous meetings of the Federal Council consideration was given to the payment of mileage or of a travelling allowance to civilian practitioners who were called on to attend members of the military forces at a distance. At the last meeting a reply had been received from the Director-General of Medical Services, stating that a recent amendment to Army Regulations provided that civilian practitioners who used their own motor-cars would be paid at the rate of from 5½d. to 7d. a mile, depending on horsepower. With this decision the Federal Council had not been content, for it was pointed out that service medical officers did work of this kind in government time, and that civilian practitioners did it in their own time, and it was resolved that a letter of protest should be sent to the Minister for the Army. The General Secretary reported that he had received a reply, in which the Minister stated that it had always been the practice of his department to relate the payment to doctors who were not army officers to the payment of those who were officers. He felt that this practice was sound, and did not favour its variation. At the same time he stated that cases might arise in which the allowance paid would be inadequate. These, however, would be very few and were covered by a special clause in the regulations. The Minister then quoted the rates which were payable as follows: when the practitioner used a motor-car of over 12 horsepower, the rate was 8d. per mile; with a car of over eight horsepower and under 12 horsepower, the rate was 6d. per mile; with a motor-car of eight horsepower or under the rate was 5d. per mile. After discussion it was resolved that a further approach be made to the Minister in the matter.

Attendance on Naval Ratings in Public Hospitals.

At the previous meeting of the Federal Council the General Secretary reported that he had written to the Naval Board in regard to the fees payable on naval ratings in public hospitals, but had not received a reply. He now stated that a reply had been received. In his letter the Secretary for the Naval Board stated that as the matter affected all three defence services, it had been referred to the Standing Committee of Services Medical Directors for discussion, and he added that the Department of the Navy would be prepared to pay fees to civil doctors attending naval personnel in public hospitals when the terms of appointment of the doctor to the hospital admitted of this arrangement. The correspondence was received.

Shortage of Civilian Medical Practitioners.

Further consideration was given to the shortage of medical practitioners. The matter had been discussed at the previous meeting of the Federal Council, when it was resolved that the Central Medical Coordination Committee should again be approached on the subject as a matter of urgency. The General Secretary reported that he had received a reply from the Secretary of the Standing Committee of Services Medical Directors, in which it was pointed out that the undertaking given by the services medical directors not to deplete further the number of civilian medical practitioners had been very liberally carried out. The Secretary then set out the numbers of medical practitioners who had been released from the services in the last twelve months. He added that the question was under constant review and would at all times receive the sympathetic consideration of the services medical directors. Dr. H. C. Colville said that the matter should not be passed over without further discussion. He said that the situation in Victoria was really serious, as the wastage in the already depleted ranks of civilian practitioners was not being made up. Something more was necessary than was being done at present. The figures given by the Secretary of the Standing Committee of Services Medical Directors were imposing, but did not reveal the true state of affairs. Often men who were released from the services were not suitable for civilian practice for many reasons, reasons such as age, unwillingness to undertake certain kinds of work, incapacity and so on. He thought that emphasis should be placed on the need for further action. More men would have to be released. The State medical coordination committees, which were throughly aware of civilian requirements, not infrequently made requests for the release of key men, but these requests were not infrequently turned down by the services medical directors, who said that the men in question could not be released. Dr. C. Craig endorsed Dr. Colville's remarks, and said that the civilian medical services were breaking up and some action on the part of the Council was needed. Dr. W. F. Simmons said that when the question of release of an officer arose, the officer was asked what his wishes in the matter were. Dr. Simmons thought that the wishes of the individual should not be considered. Dr. F. L. Davies said that some of the men who were released were working on medical boards, and their release did not relieve the busy general practitioners. Dr. N. M. Cuthbert reiterated his previous view that the situation would never be satisfactory until a reserve of medical men was formed, the purpose of the reserve being to provide assistance for civilian practitioners when it was required. Dr. George Bell thought that what was really needed was a coordinating body to cover the three armed medical services, which under present conditions remained distinct entities. He agreed with Dr. Cuthbert's view that it was necessary to have a pool of men who could be recalled on forty-eight hours' notice. It was finally resolved on the motion of Dr. H. C. Colville and seconded by Dr. N. M. Cuthbert:

That this Council views with alarm the increasing shortage of civilian medical practitioners and requests its representatives on the Central Medical Coordination Committee to use their influence in securing releases requested by the State medical coordination committees.

Shortage of New Motor-Cars.

At its previous meeting the Federal Council considered the shortage of new motor-cars, and it was resolved that a letter should be sent to the Minister for Supply drawing his attention to this situation and asking that an effort should be made in the interests of the sick public to secure motor-cars that were necessary for medical practitioners. The General Secretary said that the Minister for Transport and External Affairs had forwarded a letter received by him

from the Director of Emergency Road Transport of New South Wales and the Australian Capital Territory, stating that there was no indication that any new motor-cars would reach Australia for a very considerable time. There was a small number of light cars of British make in the country, but there had been much difficulty and delay in having these vehicles assembled and in having bodies built for them. A great many applications had been received for these cars, and when the time for distribution came, applications by doctors would receive special consideration. In regard to second-hand motor-cars, there was no control over their sale at the moment, other than the fixation of a maximum selling price. In these circumstances members of the profession who required second-hand cars could do no better than to endeavour to procure them through the usual trade channels or by private treaty. It was resolved that consideration should be deferred pending the receipt of further information by the General Secretary.

The Directorships of Major Research Institutes in Australia.

At the last meeting of the Federal Council consideration was given to the appointments that would be made to directorships of major research institutes in Australia. The General Secretary at that time reported that he had written to the institutes in question, suggesting that the appointment to the directorship should be temporary and for the duration of the war only. The Secretary now reported that he had received a reply from the Chairman of the Council of the Institute of Medical and Veterinary Science in Adelaide. The Chairman, Sir Trent de Crespigny, stated that his council was fully aware of the position and recognized the justice of having the position of director open for men in the services. Whether or not an appointment would be made would depend on the applications received from Australia and overseas. If a suitable man applied, the needs of the institute were such that the council would have to appoint him. There was no reason, however, why medical graduates on war service should not apply for the post. If such an applicant was successful, the institute would endeavour to secure his release from the forces. If a release could not be obtained at once, an acting appointment might perhaps be made until such time as the appointee was available to take up his duties. The Board of the Walter and Eliza Hall Institute replied that, other things being equal, the Board was in sympathy with the principle governing the attitude of the Federal Council regarding appointments. Dr. F. M. Burnet's qualifications were so outstanding, however, that the Board had no doubt that the interests of the institute and of research generally would be best served by his appointment.

Domestic Help for Medical Practitioners.

Further consideration was given to the question of domestic help for medical practitioners. The General Secretary reported that he had written to the Director-General of Manpower, pointing out to him that in New South Wales practitioners were allowed to submit advertisements for domestic help to *The Sydney Morning Herald* directly. He asked the Director-General to authorize the same permission to be granted to practitioners in other States. The Director-General replied that he would take the matter up with his deputies in the other States, with a view to having a similar procedure adopted by them.

Rationing.

The Federal Council had before it some correspondence from the New South Wales Branch regarding food rationing in relation to expectant and nursing mothers. This letter gave rise to a general discussion on the subject of food rationing and especially in regard to supplies of milk, eggs and butter. It was pointed out that the cut in the butter ration was not compensated for by any other specific lines. Reference was made to the fact that members of the services who were not in operational areas had a liberal supply of foodstuffs which were unobtainable by many members of the civilian community. After discussion it was resolved that Dr. W. F. Simmons and Dr. A. E. Lee should be asked to draw up a memorandum for publication in the Press.

Later on in the course of the meeting, Dr. Simmons and Dr. Lee presented a memorandum, which was discussed and approved in the following form:

> The Federal Council of the British Medical Association in Australia, meeting at present in Sydney, today expressed alarm at the continued drift in the nutritional requirements of the civilian population.
>
> The latest failure in administration is in relation to the approaching reduction in the butter ration.
>
> Though the Commonwealth Government has been informed that no reduction in the butter ration could be safe unless an increased quantity of other fats were made available, it is believed that no steps to achieve this have been taken.
>
> The Federal Council has a duty to perform in warning the food authorities that such an uncompensated reduction in the butter ration cannot fail to affect adversely the health of the civilian population. The position of the vulnerable population, the children and pregnant women, is a cause of even greater alarm.
>
> With the present meat rationing the protein requirements of pregnant women can only be satisfied by an adequate supplement of eggs, milk and cheese, if injury to the developing child is not to result.
>
> It is regarded by the medical profession as a disgraceful situation that egg meals should still be mandatory in the army food scales of non-combatant units, at a time when pregnant women are unable to obtain their minimum food requirements.

The Federal Council received a letter from the South Australian Branch, in which it was suggested that the Director of Rationing should be approached so that a rationing book should be issued immediately on receipt of a medical certificate from a medical practitioner when a woman was pregnant. Dr. Verco said that the South Australian Branch thought that one certificate should enable a pregnant woman to obtain all her special requirements for the period of pregnancy. The correspondence was received.

Income Tax Deductions and Amounts Paid to War Benefit Funds.

At the last meeting of the Federal Council reference was made to a decision of the Income Tax Commissioner regarding amounts contributed by medical officers to war benefit funds. The Commissioner ruled that when practitioners were employees, the amount of their contributions could not be claimed as income tax deductions. Dr. A. E. Lee pointed out that what was required was an amendment to the act, and this could be secured only by an approach to the Federal Treasurer, requesting that the act be amended to provide that the contributions in question should be allowed as income tax deductions. It was resolved that an approach should be made to the Federal Treasurer.

Shortage of Junior Resident Medical Officers in Western Australia.

Some correspondence was read from the Western Australian Branch, drawing attention to the shortage of junior resident medical officers in hospitals in Western Australia. During the discussion it was pointed out that fifteen resident medical officers were required for the metropolitan area in Western Australia and only six were available. It was stated that the matter was under consideration by the Central Medical Coordination Committee, and it was resolved that the matter should be left in the hands of the representative of the Federal Council on that committee.

Australian Council of Organization for Relief Abroad.

The General Secretary stated that an invitation had been received from the Minister for External Affairs to the Federal Council to send a representative to a meeting of the Australian Council of Organization for Relief Abroad, to be held on May 26, 1944. After correspondence with the President, Dr. A. J. Collins had been appointed the representative. The action of the President was confirmed.

Matters Deferred.

Consideration of the following matters was deferred: the Federal Emergency Compensation Fund, public medical services and the principles of medical ethics.

Date and Place of Next Meeting.

It was resolved that the determination of the date and place of the next meeting of the Federal Council should be left in the hands of the President.

Votes of Thanks.

A vote of thanks was extended by the Federal Council to the New South Wales Branch for its hospitality and for the use of its offices, also to Dr. George Bell and Dr. W. F. Simmons for their hospitality.

A vote of thanks was offered to Sir Henry Newland for presiding at the meeting.

Correspondence.

A NATIONAL MEDICAL SERVICE.

SIR: I would like to commend the opinions recently expressed in the journal by Dr. Brown and Dr. Lister on a national medical service.

Apart from private practice, I have an honorary appointment at a public hospital and a part-time appointment at a military hospital. In the two latter cases I enjoy the work, although it is very exacting. I feel that my patients and myself are fellow human beings and friends, and I do my best for them and am free from the handicap of any financial consideration between patient and doctor. The admitted handicap is lack of time, which is serious, but should be eliminated in a properly staffed and organized national health service.

The taking of remuneration from a fellow human being for personal medical service necessitated by his ill health, particularly the increasing of this so-called fee for prolonged and serious ill health, is basically immoral, unethical and degrading.

Yours, etc.,
ERNEST CULPIN.

Ballow Chambers,
Wickham Terrace,
Brisbane.
June 22, 1944.

THE INDUCTION OF ANÆSTHESIA.

SIR: A common anæsthetic room dialogue:

"Ever had an anæsthetic before?"
"Yes."
"Was it comfortable?"
"No—like being drowned in sulphuric acid."

A gentle induction seems to be one point that is insufficiently stressed in the teaching of anæsthesia, or, if stressed then, it is quickly forgotten during resident years, in the rush to "put 'em under" for an impatient honorary.

Nobody who has had the unpleasant—and, to a child, terrifying—experience of a chloroform smother (or ethyl chloride or ether smother) wants another. Dread of the anæsthetic is the main factor in most people's unwillingness for operation. Yet, by taking a little longer over the early stages, working up the concentration drop by drop, and giving a weaker mixture if the patient wants it, the process can be made hardly more uncomfortable than going to sleep naturally. It is surprising how many men go through years of practice apparently without ever realizing this. A few uncomfortable personal experiences might be salutary.

Will anyone who doubts the unpleasantness of a rapid induction try the experiment of wetting a towelled mask thoroughly with ether (or whatever anæsthetic he chooses) and clapping it on his own face?

Yours, etc.,
D. A. BRITTEN.

Wollongong,
New South Wales,
July 3, 1944.

WHEAT BREAKFAST FOODS.

SIR: Professor Osborne, in his letter on this subject in your issue of June 17, raises the interesting question: "Should we assess the nutritional value of any foodstuff by its content of one particular ingredient, however important?" He answers his own question when he says, "a variety of foods must be sought so that a specific deficiency in any one of them can be corrected by relative abundance in another".

This raises the further question: In the Australian diet, are those foods which have specific deficiencies of thiamin compensated for by those foods which have a relative abundance? The answer to this question will be found in the report of the Twelfth Session of the National Health and Medical Research Council, Appendix II, page 3. The average Australian diet contains 1·23 milligrammes of thiamin per "adult male". Many diets would not contain this. Compare this figure with the standard of adequacy of the National Research Council for a moderately active man—1·8 milligrammes, which was accepted by the United Nations Food Conference, 1943.

One calorie (from sources other than fat) requires half a microgramme (0·5γ) of thiamin for its complete oxidation. Ready-to-eat breakfast foods contain less than one-quarter of the thiamin needed for their metabolism, and about one-third of the level necessary to prevent beriberi. Oatmeal or wheatmeal (cooked) supplies more than three times the thiamin necessary for its metabolism.

So, in the face of evidence indicating an overall thiamin deficiency of about 33% in the Australian diet, one is justified in being concerned at the replacement of a foodstuff having a relative abundance of thiamin with one which has a specific deficiency. The situation is already sufficiently serious when it is realized that Australian white bread, consumed by 90% of the people, contains only three-fifths (68%) of the thiamin necessary for its own metabolism.

The production of endogenous thiamin in the human bowel is of considerable physiological interest, but is it really germane to the subject? The standard of thiamin adequacy of the National Research Council was established largely by thiamin saturation tests. A large series of subjects were given, by mouth, known sources of thiamin, until saturation was complete. The accepted standard for thiamin would thus refer only to exogenous sources.

Yours, etc.,
L. P. WINTERBOTHAM.

Brisbane,
Undated.

Naval, Military and Air Force.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Numbers 118 and 127, of June 15 and 29, 1944.

Permanent Naval Forces of the Commonwealth (Sea-Going Forces).

Transfer to Emergency List et cetera.—Surgeon Lieutenant (for Short Service) Kenneth Charles Armstrong is transferred to the Emergency List and reappointed for temporary service, dated 2nd June, 1944.

Royal Australian Air Force.

Citizen Air Force: Medical Branch.

Wing Commander A. S. de B. Cocks (281255) is transferred from the Active List with effect from 29th April, 1944.—(Ex. Min. No. 156—Approved 14th June, 1944.)

The probationary appointment of Flight Lieutenant J. H. Newton (263890) is confirmed with effect from 20th March, 1944.

Temporary Squadron Leader C. P. Ley (261213) is granted the acting rank of Wing Commander whilst occupying a Wing Commander post with effect from the 14th March, 1944.

The following temporary Flight Lieutenants are granted the acting rank of Squadron Leader whilst occupying Squadron Leader posts with effect from the dates indicated: W. T. H. Scales (263240), H. G. Andrew (283733), 1st April, 1944; H. Hoban (254852), 11th April, 1944.

Temporary Wing Commander R. B. Davis (251167) is granted the acting rank of Group Captain whilst occupying a Group Captain post with effect from 1st May, 1944.—(Ex. Min. No. 168—Approved 22nd June, 1944.)

CASUALTIES.

ACCORDING to the casualty list received on July 6, 1944, Major O. D. Paschke, R.R.C., Melbourne, who was previously reported missing, is now reported missing, believed killed.

Obituary.

ARTHUR JOSEPH MACKENZIE.

MEDICAL graduates who embarked on the study of medicine at the University of Sydney in the early years of this century will remember Arthur Joseph Mackenzie, known by everyone

as "Jock", who played Rugby football as full-back in the University "fifteen", and who, being gifted with a generous mind and an attractive personality, stood for all that was best in student life.

Arthur Joseph Mackenzie was born at Aberdeen, New South Wales, on January 20, 1883. His school days were spent at Aberdeen and at the East Maitland High School. When he entered on the study of medicine at the University of Sydney, he went into residence at Saint Andrew's College. He was a successful student, and at the same time identified himself with the sporting life of the University and of his college. He not only played full-back for the University team, but played in the same position for New South Wales and with an Australian team. He also played cricket, and in later life became a competent golfer. On graduation Mackenzie became resident medical officer at Prince Alfred Hospital. For a while he joined his brother, the late John Mackenzie, in practice at Glen Innes, New South Wales, and then proceeded overseas for post-graduate study. He did some work on the Continent and in London and studied gynæcology at the Coombe Hospital, Dublin. On his return to Australia he once more joined his brother at Glen Innes and remained in practice there until his retirement a few years ago to his station property near the town.

During the war of 1914-1918 Mackenzie was commanding officer of the medical section at Liverpool camp, and members of those who went overseas passed through his hands. Later he had charge of the military hospital at Randwick and then became commanding officer of the hospital ship *Kanowna*. During the present war he gave valuable service at a military hospital at Bathurst and also acted for a period as Deputy Director of Medical Services for the Civil Construction Corps in Queensland.

As might be expected of a man endowed as Mackenzie was, he took an active interest in the affairs of the country district in which he lived. He was actively associated with the Central New England Pastoral and Agricultural Association, becoming its vice-president. He was for many years a chieftain of the Glen Innes Caledonian Society and was a foundation member of the advisory council of the New England University College. With his wife he also assisted in the presentation of a number of light operas. It is small wonder that the people of Glen Innes and of the New England district took Mackenzie to their hearts. For thirty years he served them well, and the highest praise that can be given to him is that his professional life was lived in accordance with the best traditions of medicine. The *Glen Innes Examiner* wrote of him that "he invested his everyday life with an inherent sincerity which won for him an enduring affection". No doctor can wish for a better eulogium.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Wells, Rosina, M.B., B.S., 1944 (Univ. Sydney), 132, Ramsgate Avenue, North Bondi.
Benson, Lois Ellen, M.B., B.S., 1941 (Univ. Sydney), 13, Dudley Road, Rose Bay.
Hudson, Roger Selwyn Barrow, M.B., B.S., 1944 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.
Lindsay, Robert Alfred, M.B., B.S., 1944 (Univ. Sydney), Newcastle Hospital, Newcastle.
Ridley, Dorothy Edith, M.B., B.S., 1943 (Univ. Sydney), 13, Hector Road, Willoughby.

The undermentioned have been elected as members of the South Australian Branch of the British Medical Association:

Aitken, Gilbert William Elliot, M.B., B.S., 1943 (Univ. Adelaide), Royal Adelaide Hospital.
Burnell, Arthur William, M.B., B.S., 1943 (Univ. Adelaide), Royal Adelaide Hospital.
Craven, David Edward, M.B., B.S., 1943 (Univ. Adelaide), Royal Adelaide Hospital.
Davies, David Llewelyn, M.B., B.S., 1943 (Univ. Adelaide), Royal Adelaide Hospital.
Jansen, Marcus Gordon, M.B., B.S., 1943 (Univ. Adelaide), Royal Adelaide Hospital.

Diary for the Month.

JULY 17.—Victorian Branch, B.M.A.: Hospital Subcommittee.
JULY 17.—Victorian Branch, B.M.A.: Finance Subcommittee.
JULY 18.—New South Wales Branch, B.M.A.: Medical Politics Committee.
JULY 18.—Victorian Branch, B.M.A.: Organization Subcommittee.
JULY 19.—Western Australian Branch, B.M.A.: Branch Meeting.
JULY 20.—Victorian Branch, B.M.A.: Executive Meeting.
JULY 20.—New South Wales Branch, B.M.A.: Clinical Meeting.
JULY 25.—New South Wales Branch, B.M.A.: Ethics Committee.
JULY 26.—Victorian Branch, B.M.A.: Council Meeting.
JULY 27.—New South Wales Branch, B.M.A.: Branch Meeting.
JULY 28.—Queensland Branch, B.M.A.: Council Meeting.
AUG. 1.—New South Wales Branch, B.M.A.: Organization and Science Committee.
AUG. 2.—Western Australian Branch, B.M.A.: Council Meeting.
AUG. 2.—Victorian Branch, B.M.A.: Branch Meeting.
AUG. 4.—Queensland Branch, B.M.A.: Branch Meeting.
AUG. 4.—Victorian Branch, B.M.A.: Legislative Subcommittee.
AUG. 8.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
AUG. 8.—Tasmanian Branch: Branch Meeting.
AUG. 11.—Queensland Branch, B.M.A.: Council Meeting.
AUG. 11.—Victorian Branch, B.M.A.: Ethics Subcommittee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phœnix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia.

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